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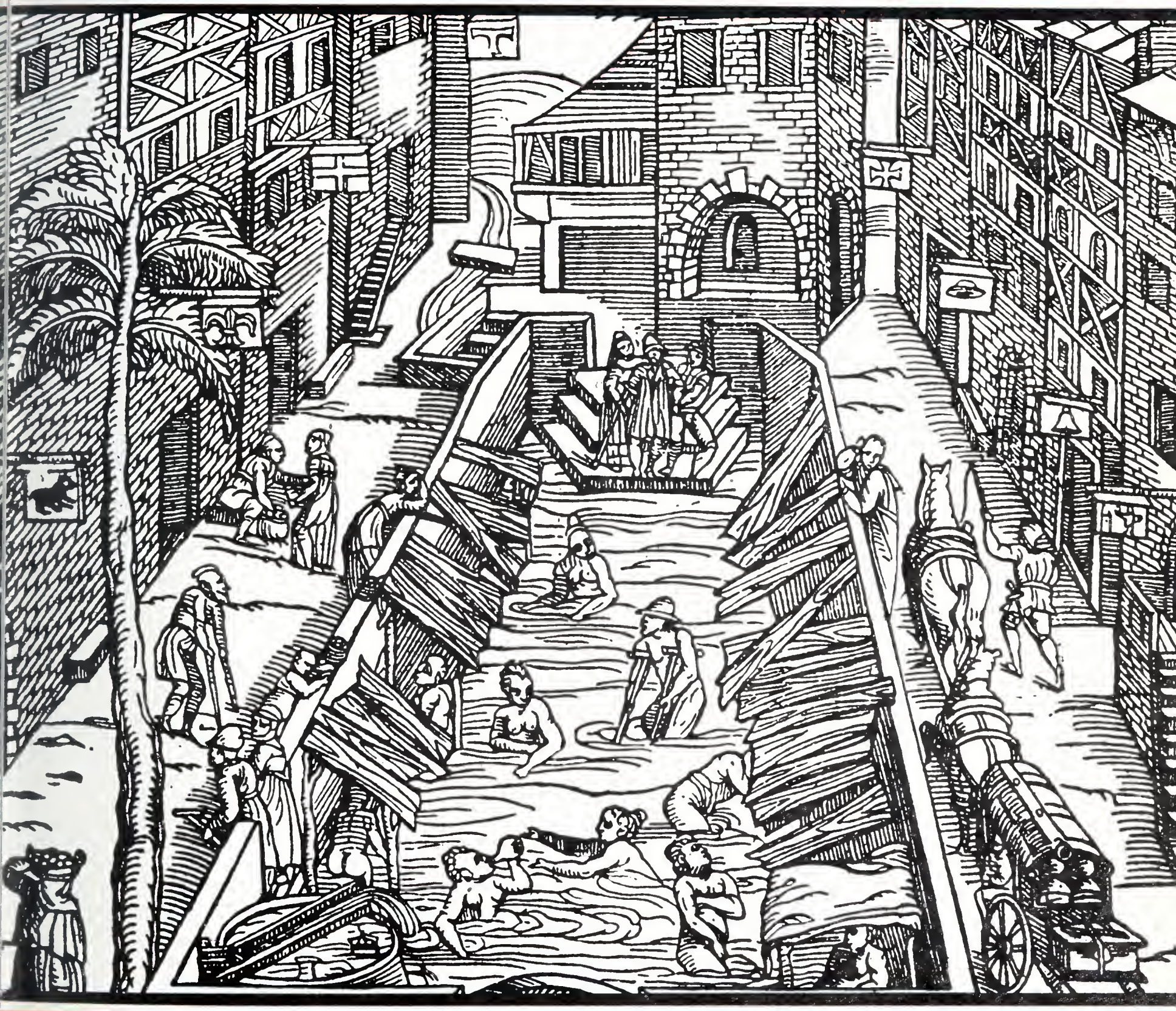

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VOLUME XXXIX

NUMBER 4

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Woodcut from De Balneis, Venice, 1853, showing a public bath in a health resort. Some of the patients, including a man in the centre of the bath, are using crutches. Another is being assisted down the steps into the water, while a woman bather, immersed waist-deep, is drinking from a flask.

Taken from "A History of Medicine" — D. Guthrie — Thomas Nelson & Sons Ltd., 1958.

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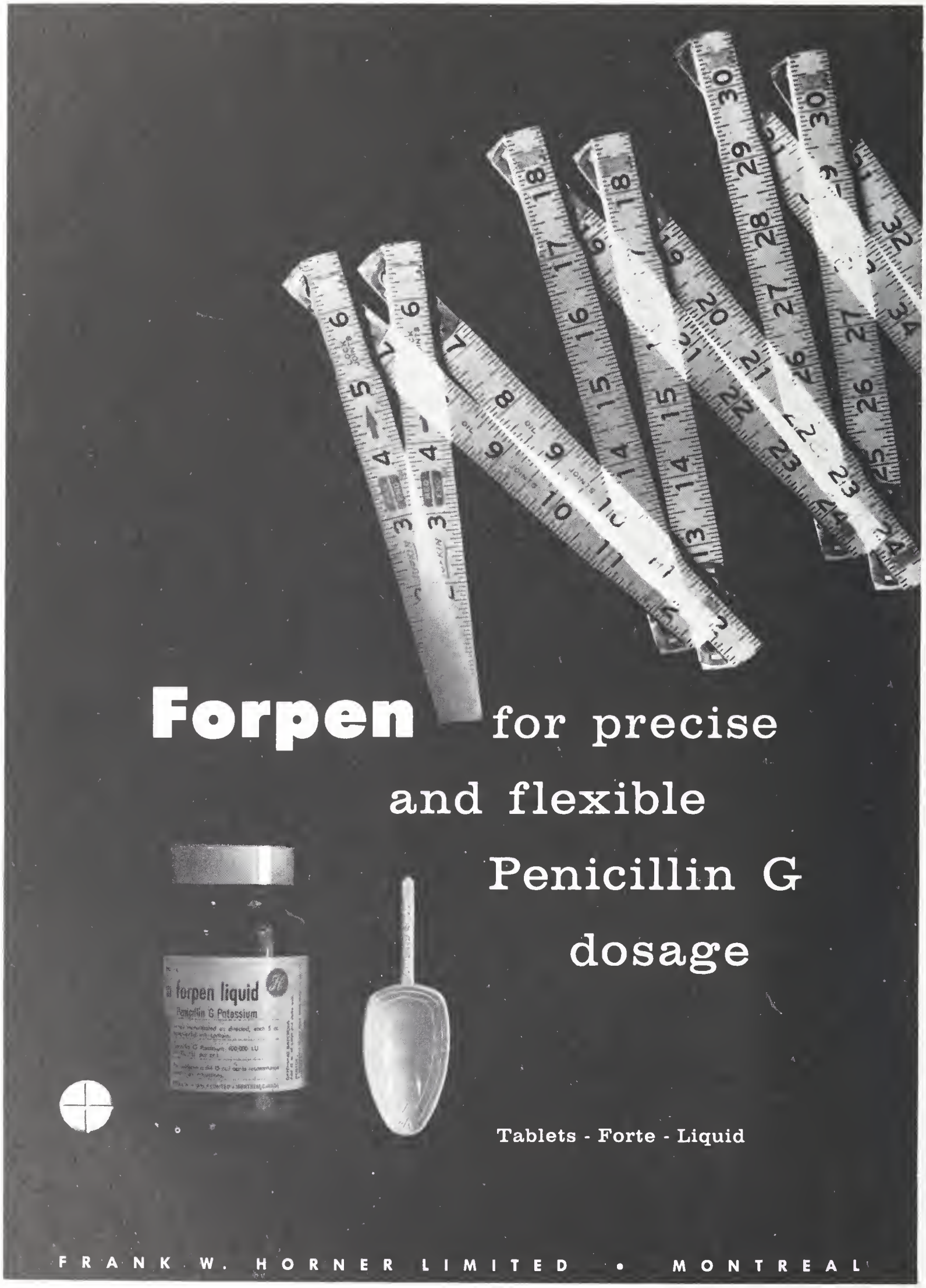
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Editorial

The medical profession today provides an ever expanding number of specialties and subspecialties from which the graduating student can choose as his career. Although many may have considered general practice as the ideal, the majority will specialize, as they come to realize that it is too great a challenge, that superhuman ability is required to provide adequate care in the whole broad field. But the doctor about to enter a specialty is faced with a dilemma. In the years of study, his clinicians have stressed to him the importance of healing the "whole patient". Yet he has an inner fear that often this is not possible; he sees that the specialist, and even the general practitioner feels too busy to cope with long term chronic illness, physical disability and problems of ageing.

In presenting the specialties of Rehabilitation Medicine and Geriatrics we are trying to stress that these are not merely "another specialty" which the physician has little to do with directly; we are trying to stress that not only the idealistic young graduate but every doctor, whether a specialist or GP, has the duty of restoring his patient to maximum function possible; thus the modern physician has realized that a rehabilitation programme is an integral part of the process of caring for his patient. Both in Canada and in the U.S. most large hospitals today have a rehabilitation unit, where the team of doctors, nurses, therapists and social workers work together with the patient, once his acute illness is over, until he can function to his potential physically, mentally and occupationally. Not only the medical profession but the populaace in general is aware of this important need. No other culture has shown such interest in helping the disabled in rejoining his society actively and usefully. In the past century, countless agencies, campaigns, foundations have sprung up. Since the end of World War II there have arisen voluntary international organizations such as the International Society for the Welfare of Cripples, World Veterans' Association, and within the United Nations—W.H.O., I.L.O., UNESCO, and UNICEF. But helping the chronically ill, disabled, and the aged is a relatively new attitude; it was not always so.

In primitive society, handicaps were treated as a nuisance, and any disabled member was quickly rejected. The whole structure of primitive life was dependent on strength and speed; the cripple was a burden and so there was no excuse for his maintenance. In ancient India, cripples were thrown into the Ganges; the Aztecs sacrificed deformed persons in time of famine; the Melanesians buried theirs alive. Yet even in those times there were bright moments of sunshine when the cripple was not an outcast. Skeletal mummies found in the Nile Valley from the 5th Dynasty (2780 - 2625 BC) indicated that broken bones were treated with skillful splinting. A Buddhist in 200 BC started a ministry for the care of unfortunates. The Greeks, over 2,000 years ago, in the cult of Asklepios, established convalescence for the deformed and disabled, with exposure to air and sunshine, exercise and hydrotherapy. Hippocrates (460 - 370 BC) established the principles of modern orthopaedics, describing correction of deformity by traction and manipulation. He taught also that early treatment and convalescence were two phases of one process. One of his teachings was "exercise strengthens and inactivity wastes." He also decribed the results of spinal cord trauma—retention of urine and faeces, loss of strength of the lower limbs, cold skin and fatal termination. In the Roman era, Galen followed the practice and teachings of Hippocrates. He studied muscle action and grasped the significance of muscle tone. Romans were great warriors and provided excellent medical services for their soldiers. Amputees were fitted with iron hands or arms, or wooden artificial legs. However, with the downfall of Rome in the 5th century, Europe was handed over to the barbarians. Ceaseless famine and poverty left no room for the weak and incapacitated.

The Old Testament influenced further man's attitude to one of rejection, for his physical state was considered to be a reflection of man's relationship with his deity; thus deformity was a curse of God and a sign of spiritual degradation.

EDITORIAL

The Middle Ages (15th and 16th Centuries) looked upon the disabled as people to be feared for they were considered to be possessed of evil spirits and doing the handiwork of Satan. The poor cripple, marked with suspicion of witchcraft, was burned at the stake, haunted with contempt as was the hunch back of Notre Dame. Yet in this dark age of suspicion we have writings of men who saw a different light. Military surgeons such as French Amrose Paré, were impressed with inherent human powers of recovery of function if given the chance.

Thus through the centuries a whole gamut of attitudes progressed: rejection, fear, contempt. Cripples were destroyed or hidden, and so were a rarity. In the days before the Reformation, another attitude sprang up; they became the object of mirth and amusement. Thus we have the buffoons, the fools and court jesters, so popular in the writings of Shakespeare. Along the Apian way, cages held grotesque disabled humans as an attraction. Cripples amused the Kings and parents broke their children's bones so that they might be economically useful.

It was not until the 18th Century that the cripple was considered as a social problem. The Spirit of Humanitarianism grew as people began to look at the world and life in terms of human experience and reason rather than religion and superstition. The public was gradually aroused to compassion but also to action. Nevertheless, the rising industrialization, extreme poverty, child and woman labour produced men and women crippled in mind and body, and it was another century before these appalling conditions were changed by the growing humanitarian spirit.

The 19th Century brought the beginning of orthopaedic surgery. In France, Nicholas Andry invented "orthopaedia" — the art of correcting deformities in children by rest, support, and exercise. In England, Hugh Owen Thomas devoted his life to bone and joint disease. He designed splints and other appliances to produce absolute rest of fractured limbs, and stressed the importance of after-care to the point of recovery of function. Another outstanding figure of this age was Dame Agnes Hunt, herself a cripple, who spent her life establishing clinic centres for prolonged treatment, crippled children's hospitals where the basis of treatment was fresh air, sunshine, rest and good diet. All over Europe orthopaedic hospitals began to spring up by the end of the 19th and beginning of the 20th century. A great influence on all this progress was the 1st World War. Orthopaedic centres were established to care for the war injuries, and so were curative and occupational workshops, with a wide range of treatment — gymnastics, recreation, occupational training, as it was realized that recovery of body should not be jeopardized by despondency of mind. But perhaps most important was the world-wide change of public attitude towards the cripple — a sympathetic understanding of his problems and his desire to become a functional part of society.

Today the disabled and handicapped person has the chance to take his place in the scheme of society as an active and useful member. However, his position is not entirely secure for the old attitudes of rejection, neglect, contempt, and mere pity have not died out entirely, and they still dampen his courage. He can only hope that the future will bring a brighter heritage.

C.M.K.

Editorial

The dictionary definition of senescence is: the state of growing old; beginning old age. When does old age begin? Physiologically man's involutional changes are closely related to his evolutional changes from birth. Senescence cannot be said to commence at any particular age, else how explain the phenomenon of those prematurely senile at forty and of others, like Adenauer, still vigorous in their eighties. Obviously, when considering the aged, one must take into account mental attitude as well as physiological age.

As to longevity, man appears to be midway between trees which live for thousands

of years and insects and plants which live only for a few hours or a few days. There are many claims in history of men living from one up to six hundred years. From interest shown in these reports, it can be seen that man is fascinated by the prospect of living several hundred years. Is this not most likely a desire to put off the final dissolution of self? There would be no point in living this long without lucidity of mind and mobility of body. Medical science has long been interested in attaining the key to the ageing process in order both to prolong life and to make it worthwhile lengthening by preventing deterioration of mind and body.

How have other ages treated their aged? Writers probing deeply into this subject found that primitive races varied considerably in the treatment of their elders.

On one extreme was one of the Papuan races of New Guinea. They disposed of the old and the useless, but in a friendly, light-hearted manner that proved fun for the whole tribe. The victim was put in the branches of a tree around which the tribe gathered singing "the fruit is ripe". Then the branches were shaken until the victim fell, to be torn to pieces and eaten raw! Among slightly more refined tribes the method of disposal was more humane but nonetheless effective. On the other extreme was the ancestor-worship of the Chinese which for so many dynasties ruled all aspects of their lives.

In between were the attitudes of the ancient Greeks, the Romans, and the Hebrews. Among the Greeks the passing of youth was considered the loss of all that made life worthwhile: this despite the examples of Socrates and Plato who taught their philosophies actively into a ripe old age. Athenian youths were able to carry out litigation to secure the property of their aged parents. Romans, however, made parental authority supreme, the Senate being composed mostly of old and honoured men. The Hebrews had great respect for their elders as manifested in the high position held by their prophets. Some writers feel that the belief in witchcraft, so widespread in the Middle Ages, was basically a fear of the unsightliness of old women and of the knowledge of racial secrets that they were believed to possess.

Today the aged are not as feared, as admired, nor treated as cruelly as in some of the examples cited. Politicians pay careful mind to their voting power at election time. Relatives tend to neglect them unless riches lie thereby. The doctor may show impatience with the chronicity of their ailments, perhaps failing to realize that he may be the last one to show any interest in them.

What to do in their old age is a problem most men prefer not to face. A doctor is fortunate in that he may carry on his profession at his own pace so long as he is able to do so adequately. Others not so fortunate may show a sharp decline physically and mentally at that enforced male "menopause", retirement.

Our purpose in this issue is to emphasize the importance of a doctor's interest in his chronically ill, handicapped, and aged patients. Some of their problems are discussed and the facilities available for their aid. The greatest problem probably still lies in the patient's mental adjustment to his problem and to achieve this he requires the help of his relatives, but more especially, of his doctor. J.B.

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Rehabilitation of the Older Patient

by Bruce Hartley B.A., 6T2

Today's physician has the responsibility and privilege of not only treating the acute illness in his older patient, but also making certain that his patient recovers and retains sufficient physical and mental function to carry on a reasonably happy, useful and dignified life. This is the role of *rehabilitation* and it may be divided into the following four stages;

1. Rehabilitation during the acute illness
2. Rehabilitation during the chronic phase of the illness
3. Reintegration to the community
4. Prevention of invalidism

Before dealing with specific rehabilitation measures in specific diseases, it would be well to look more closely at these four stages in Geriatric Rehabilitation.

First Stage

Measures taken during the acute stage of illness are important to prevent complications incident to complete inactivity and include proper postioning in bed, deep breathing and turning to prevent atelectasis and bed sores, splinting and passive exercises to prevent joint deformity and muscle contracture, massage, moist heat etc. An evaluation of the patient's likely rehabilitation needs and prognosis should be made.

Second Stage

After the acute stage is over, the patient should be helped to sit up, to avoid the deadly complications of prolonged bed rest—viz. atelectasis, bronchopneumonia, malnutrition, dehydration, genitourinary infection, depression, joint stiffness, etc. As well as routine physio and occupational therapy to strengthen affected muscles, free joints, etc., the patient should be assessed as to his ability to carry out the Activities of Daily Living (A.D.L.). These consist of:

1. Bed Activities: Changing position, sitting, etc.
2. Wheelchair activities: transferring from wheel-chair to bed, managing wheelchair, etc.
3. Self-care activities: toilet, eating, dressing, washing
4. Ambulation and elevation activities: walking, climbing stairs, sitting down and standing up
5. Travelling activities: getting in and out of car, public transportation etc.
6. Miscellaneous activities: using the telephone, handling keys, etc.

The retraining of the crippled geriatric patient to look after himself and to carry out these basic activities will lighten the nursing load, increase the patient's morale, usefulness and dignity, and earn the lasting gratitude of both patient and his family. During this period, the continued enthusiasm and encouragement of the medical staff is important to motivate the patient to make the effort required to succeed in regaining lost function.

Other specialized therapy during this chronic stage might include retraining of the newly aphasic, the blind, and the deaf.

Third Stage

Reintegration of the patient from hospital to home involves the cooperation and understanding of the family. They must be willing to help continue the program of rehabilitation set out for the patient, and in general, must allow him to do as much for himself as possible. Follow-up care by physician or physiotherapist or occupational therapist is important.

Fourth Stage

Prevention of invalidism in older patients is something of which every general practitioner should be aware. An-all-too-common story is that of the grandfather who being released from hospital after some relatively minor acute illness, is waited on hand and foot by a well-meaning but unknowledgeable family at home. The patient soon comes to feel his family must think that he is failing, and in mild despondency he relinquishes more and more of his desire to remain independent. The family at first are glad to look after

their grandfather's physical need, but as time goes on they come to feel the burden of his growing dependency. As a means of easing the nursing burden, they retire him to bed for most of the day.

Prolonged bed rest leads to stiffening joints, decreased caloric intake, and lessening interest in the outside world. The patient sleeps during the day, and is awake in the night. Sedatives may be prescribed for this sleeplessness, leading to mild confusion, decreased fluid intake, mild uraemia and further mental clouding. At this point, the patient may become incontinent and have to be admitted to hospital in spite of the fact that no specific medical illness can be pinpointed.

Such a series of events in the discharged geriatric patient should be prevented by instructing the family to allow the patient to do all that he can for himself when he returns home. Simple adaptations as required—such as bed at chair height with casters removed, grasp bars at the toilet and railing on the stairs, loose clothing for the arthritic, bedside commode, etc., are helpful in enabling the older patient to look after himself at home. As well, the provision of occupational therapy such as knitting, weaving, wood-work, jig-saw puzzles etc. and the participation in groups such as Church and Senior Citizen activities are a real means of keeping these people well and interested in life.

Specific Rehabilitation Measures in Four Common Geriatric Diseases

Hemiplegia [2, 3, 4, 5, 6, 7]

There are over 100,000 hemiplegics in Canada. The prognosis of this crippling disease has been markedly altered due to modern rehabilitation techniques, as follows.

If the case is uncomplicated and if the family is able to undertake the nursing and some of the physiotherapy responsibilities, and if there is a visiting physiotherapist, the patient is probably best left at home, since movement to hospital may lead to confusion, withdrawal and uncooperation. If a patient remains unconscious for two days, however, he should not be left at home.

Early measures to prevent deformities: These include a firm mattress for ease of turning and to prevent trunk sagging (which leads to back pain later); the affected arm should be abducted from the shoulder and placed on a pillow with the hand higher than the elbow. The hand and wrist can be held out in a splint during the night to prevent flexion deformity. The affected leg should be held in a neutral position with the foot at 90° by a long posterior splint and sand bags.

When the patient has become aware of his surroundings (he should be evaluated concerning his physical condition, learning ability, motivation and likely prognosis. Covalt says that those who can move the affected arm (since it is usually involved more than the leg) or lift the affected leg one inch off the bed (indicates sufficient quadriceps strength) will walk again. It is important to encourage the patient to look away from his disability and on to the hope for the future which his own efforts at rehabilitation can help bring about.

Two or three days after the onset of thrombosis or embolism, and 5 or 6 days after haemorrhage, moderate activity may be started; viz. all affected joints are moved passively through a full range of motion twice daily by a nurse, physiotherapist or relative. As the patient improves, he is asked to assist in these movements. He should also move his normal extremities through their full range of movement 5-10 times each waking hour. A pulley set up over the affected shoulder aids in its movement by the patient.

Bladder and Bowel Care:[7] the severe case of stroke goes through two stages: the stage of flaccidity (spinal shock) characterized by bladder atonia and retention, and then the stage of spasticity, characterized by a hypertonic bladder and incontinence. The first stage should be treated by simple catheter drainage (Foley), the second, by tidal drainage (if in hospital). The principles of treatment of urinary incontinence are: push fluids, beware of infection (do urinalyses, remove catheter as soon as the patient is aware of his surroundings) and teach the patient to hold his urine for increasing periods of time; i.e. as the patient is becoming aware of his surroundings, clamp off his catheter for 2 hour periods to get the bladder used to this load. When the patient is fully conscious, remove the catheter, and give 2 glasses fluid every two hours during the day. Record when the desire to urinate and the greatest incontinence occurs (eg. 45 minutes after drinking) and place the patient on the commode at this time every two hours, encouraging him to empty his bladder completely, by suprapubic pressure if necessary. Restrict fluids after 6 p.m. Many patients on this routine will be dry for two or three hours at a time if this program of training is carried out for a period of weeks. Men who fail to achieve continence

may wear condoms during the day and can lie on a shower cap filled with absorbent cotton at night; women can wear waterproof underwear during the day and diapers at night.

Bowel training is easier, and consists of giving prune juice and a glycerin suppository each morning at the same time and then sitting the patient on the commode. Before long, one learns the interval between suppository and evacuation. The doctor or nurse who persists in training his patient's urinary and bowel continence will win the lasting gratitude of both patient and family.

Self-care activity: Since function returns slowly, if at all, in the affected arm, the patient should be trained to carry out dressing, feeding, toilet care, opening doors, writing etc. with the good arm right from the first day he is conscious. Simple adaptations such as large-handled utensils, combination knife and fork, shoe fasteners instead of laces, long-handled shoe horn, etc. are very helpful.

Retraining the affected arm: The spastic patient should try to move all affected joints 5 times every hour. The flaccid paralytic is treated with passive movements followed by active assisted exercise. Fine movements of the hand are often not recovered.

Walking: As soon as the patient's medical condition permits, he is helped to sit up in bed, and then to sit on the edge of the bed (it should be low enough for him to touch his feet to the floor). After he is able to sit for one hour, he should be helped to stand between two hard-backed chairs (with his bad hand bandaged to the chair if necessary.) He may need a posterior knee splint to keep his knee from buckling. When he can stand for fifteen minutes between two chairs, he should try shifting his weight from one foot to the other. The appropriate brace should now be fitted (short-leg brace with spring lift if the patient cannot dorsiflex his foot, long-leg brace if the knee buckles) and then the patient can learn walking between parallel bars. This type of training should be carried on for six to nine months before resigning the patient to a wheelchair.

Speech Therapy[6]: The patient and his family should be told at the beginning that aphasia does not necessarily mean loss of intelligence. Most aphasics can be helped by a few initial visits from a speech therapist followed by instruction using one of the commercial do-it-yourself speech kits to regain a vocabulary of necessary nouns—eg. name, address, doctor, toilet. Results vary with the degree and type of aphasia (expressive, receptive, mixed, global).

Reintegration to the community: Group games and occupational therapy help these people to take a greater interest in life and help prepare them to mix again with outside people. The physician should be acquainted with the social and economic conditions at home, and should see that the family understand the principle of letting the patient do as much for himself as possible, and that necessary adaptations such as bedside commode, railing on stairs etc. be made.

Prognosis: Many (90% of carefully selected patients) learn ambulation, self care, and continence in an average of 6-8 weeks. Others receive only minimal benefits. Bad prognostic stigmata are: continuous disorientation, agitated depression, global aphasia, a combination of limb amputation plus brain infarction, alcoholism, sphincter incontinence, and severe medical complications such as intractable heart failure, uraemia, or pneumonia. A two-week trial of rehabilitation after the acute stage is over should show how much the patient will benefit from this form of therapy.

Hip Fracture.[4]

Immediate surgical fixation and early rehabilitation measures have lowered the morality of this serious condition. The hip is usually pinned, or replaced by a Moore's prosthesis, depending upon the site of fracture, within 24 hours of injury. The patient sits up on the edge of the bed on the following day (mainly to prevent chest complications) and the affected leg is treated by foot and toe exercises and static quadriceps drill. The uninvolved limbs are given specific exercise to strengthen them to take the load normally carried by the broken hip. After pinning, weight bearing is not allowed for three months; with a Moore's prothesis, weight bearing is allowed in about one week, usually starting off in the pool.

Degenerative Joint Disease (Osteoarthritis)[3]

This common chronic disabler of old age is characterized by pain, weakness and loss of range of movement of the joints. Heat in the form of hot water, melted paraffin, hot moist packs, electric pads, infra-red irradiation or short-wave diathermy applied to the affected joints is an effective comlement to salicylates in relieving the pain.

Massage to relieve muscle spasm and to discourage subcutaneous fibrosis, and active exercise to in-

crease the range of movement of the affected joints are also helpful.

Other measures commonly used are sponge-rubber shoes for all patients with weight-bearing joint trouble, arch supports or other shoe correction for foot involvement, cane or crutches for hip disease, corsets, head traction and cervical collar for spinal involvement. (N.B. Much low back pain in old age is caused by osteoporosis, which can be treated by an androgen-estrogen combination as well as the measures above).

In general, these patients will have to restrict their physical activity somewhat and will have to continue therapy for their disease permanently. This can often be done by employing interesting group occupational therapy.

Abnormal Gait Pattern[4]

This is not seen so commonly as before, due to better measures taken now to prevent invalidism as discussed above. It presents in an apparently healthy older person who has no remarkable physical findings until he starts to walk—when he takes a few short shuffling steps, look frantically for support, and then fall as his knees buckle out from under him. The cause is not clear-cut, but is probably due to disuse atrophy of joints and muscles caused by prolonged inactivity.

Treatment consists of exercises to strengthen the muscles, measures to free the joints, and painstaking correction of the gait pattern by a physiotherapist, preferably in the pool. Bracing is ineffective.

Discussion

While the ill-effects of prolonged bed-rest and inactivity have been stressed thus far, one should realize that older people need a rest between meals as well as an early bed-time and that they are not able to do as much physical activity as they did when they were young. Moreover, one needs patience in waiting for restoration in the older patient—it takes a much longer time than we are used to. And conversely, degeneration happens with frightening speed if given optimum conditions, as already pointed out. Further, there are some older patients who will be helped substantially by efforts at rehabilitation. These people have lost their learning ability, are senile, psychotic, lack motivation or have severe medical complications. But, barring these, nearly all older folks can be helped to greater level of functioning, both physically and mentally, by sincere efforts at their rehabilitation. This has been well attested to by Plass and Lazarony[8] who developed a homespun Geriatric rehabilitation program for the 53 inmates of the Poughkeepsie N.Y. City Infirmary in 1959. In one room and with limited funds, they set up a treatment table, parallel bars, a wall bar, overhead pulleys & weights and with the help of a physiotherapist one-half day per week, began a physiotherapy program which soon resulted in increased patient morale, decreased nursing load, and a three-fold increase of discharges to home, boarding, or rooming houses. Atoman[9] reports on the good effects of simple group games with a ball etc. in improving mentally deteriorated old patients who did not respond to any other therapy. There can be no doubt that rehabilitation is an effective tool in the doctor's fight against the chronic, crippling diseases of old age.

Summary

Four phases of Geriatric Rehabilitation (during the acute illness, through the chronic stage, reintegration to the community, and prevention of invalidism) are discussed and specific measures in four common geriatric diseases (Hemiplegia, Hip Fracture, Osteoarthritis, Abnormal Gait Patterns) are outlined. Every doctor is able to do a great deal to help his older patient regain a happier, useful and dignified life if he is aquainted with a few simple principles and techniques of rehabilitation.

ACKNOWLEDGMENTS

I should like to thank Dr. J. S. Crawford and his staff at Toronto Western Hospital Rehabilitation Department and Dr. W. J. Gardiner of Toronto General Hospital.

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Rehabilitation Problems in Children

by John R. Taylor, 6T3

History & Semantics

The mediaeval word 'rehabilitation' carried with it for centuries the canon-law meaning of "restoration of one's good name." We could more accurately render it from the Latin by the word *reablement*, which primarily signifies "restoration," and it is this meaning that the word carries with it today.

One of the first trials of "restoration" in modern times was the use of occupational therapy by William Cullen toward the end of the 18th Century when he advocated farming for mental patients. In Belgium in 1907, Pastur established a school for the vocational training of people too disabled to participate in existing apprenticeships.[6] This approach to the betterment of the handicapped was referred to as 're-education' by the Western European countries when they adopted it.

The term rehabilitation throughout the first half of this cenury has expanded o embrace everything from the fertilization of the soil to the reformation of juvenile delinquents, until today it includes the team effort we know as "medical rehabilitation", i.e. the process of restoring or undergoing restoration to health or efficiency. When referring to the child with a congenital deformity or disability, the term habilitation might more aptly apply, for it implies not the restoring of function or proper conditions, but the guidance in establishing the same.

Scope

As with any field of medicine, that of Rehabilitation is seldom covered completely by any one medical institution or even wholly encompassed by a particular medical centre. The inevitable subdivision of medical specialties coincides with the relentless and promising advance of medical knowledge as a whole, and in keeping with this concept, the appearance of hospital departments aimed solely at the habilitation of the handicapped child will be another step forward. In this city, the opening of the Ontario Crippled Children's Centre (O.C.C.C.) in the spring of this year is a significant sign of the times, and reflects the concentrated efforts of those whose interests lie in the realm of habilitation of children.

Who of us has not questioned, at one time or another, the *Why?* and *How?* of rehabilitating the man, woman, or child, once diagnostic hurdles have been overcome, and then left it at that, lest it involves a field of medicine clothed in unfamiliar aspects? Though the medical school curriculum may provide us with theories of rehabilitation, many of us may have little opportunity to see or understand their practical application.

This article will attempt to outline these same unfamiliar aspects and emphasize their pertinence to the field of rehabilitation of the child.

Perspective

A rehabilitation programme for children provides benefit for those with a variety of congenital and acquired disabilities, and generally embraces youngsters with physical or orthopaedic handicaps. A child may be considered physically or orthopaedically handicapped "if his disabilities prevent him from participating in childhood activities of a physical, recreational, or educational nature."[4]

The child eligible for treatment is offered the services of a *team* of workers who "direct their energies to the common goal, which is the purpose underlying all treatment of the sick, namely, that the patient be made as well as possible and as useful as is compatible with his condition."[9] This concept of a team approach to rehabilitation is one of longstanding in the medical field, but it is only recently, since World War II, that it has been practically applied.

The adequate application of these special services at an opportune stage in the child's development might help him to be less dependent on others for the fulfillment of every aspect of his daily living, including the features of self-care, use of hands, ambulation, speech, etc. . . . . those "second-nature" faculties which tend to take their natural pattern in the non-handicapped youngster.

If the original handicap and its associated con-

ditions *per se* cannot be remedied, then the patient can at least be taught and helped to adjust to the limitations of his abilities, and if the basic objectives of rehabilitation are to be met, then the emphasis must be placed on the remaining ability rather than solely on the disability itself.

Philosophy

Rehabilitation of disabled children is based on the philosophy that "the child with a physical handicap is first a child whose basic needs are those of a child". [4] Therefore, the methods employed and the objectives outlined must be viewed with this thought in mind. The meeting of these basic needs will require not only the services of specially-trained people, but the warmth and understanding of those who surround him in his family unit.

Although the ultimate prognosis for the child may be seemingly hopeless, and, in certain instances, the youngster may be expected to die within a short span of years, his habilitation should not be dismissed. Is death not the eventual fate of all humanity? Even so, there is justification in the scheme if the end result is nothing more than making the child more comfortable during his allotted years.

Therapy following early case recognition, and utilization of present time may be enough to maintain the child until the dawn of that inevitable tomorrow which might produce a cure.

In the light of this concept, the harmonious blending of proper facilities and interested workers is focused on each presenting case with the desired objective of restoring or habilitating the handicapped child "to the fullest physical, emotional, social, vocational, and economic usefulness of which he is capable."[4]

Of prime importance is the treatment, not of the handicapped child alone, but treatment of the child as a part of the child-parent unit, both of whom share this common problem. The parents must be included as an intregal part of the team approach in the habilitation programme, and their co-operation is essential to the ultimate success of all efforts.

Studies by Bleck and Headley[1] have shown that the participation of parents in their pre-school nursery programme enabled them to improve their own relationship with their child, to realize the child's limitations, to diminish anxiety on the child's behalf concerning his participation in a more intensive treatment programme, and to decrease their disappointing and fruitless searching for miracle drugs and various esoteric treatments.

The parents co-operation requires adequate understanding of (i) the total problem involved (viz. medical, educational, sociological, and psychological) and (ii) the aims of the treatment programme. They should understand what may be expected from such treatment, as well as what may not be expected, thus enabling them to accept the child's and the programme's limitations. If this approach is to be taken, then each problem must be individually assessed and an appropriate programme outlined for resolving it.

A most important and necessary adjunct to this philosophy is that of early and accurate diagnosis. For example a child afflicted with cerebral palsy or muscular dystrophy may not be recognized as such but be suspected of being retarded, and diagnosed as such. Many children in years past have been allowed to develop well-established patterns of contractures, deformities, abnormal movements, and speech defects without proper opportunity for habilitation. Today, this should no longer be the case with the facilities available in most centres. The responsibility for many of these afflictions may be attributed to a degree of parental neglect and ignorance, but as well, the onus may rest on the shoulders of professional indifference and ignorance of the early signs and symptoms of crippling conditions.

It is only through the recognition of these minimal signs of crippling conditions by family physicians and parents that the disabilities will be found out and an attempt made at early habilitation. For example, contractures may develop beyond the stage of useful restoration, or the child who is deaf may be treated as one mentally retarded, and miss the early guidance he will require with his problems of speech.

Regardless of the expansive and expensive facilities and skills assembled in any one centre, such an armamentarium is of little use unless applied to those who need it at a stage in development when it will be most beneficial. A handicapped child not found out, is a child not helped out! Early diagnosis hand-in-hand with early treatment may be this youngster's only hope of successful habilitation.

Conditions Producing Handicaps

Examples of some of the common conditions which produce handicaps in the developing child are:

1. Blindness and partial blindness.

2. Deafness and partial deafness.
3. Cardiac disorders.
4. Tuberculosis and Cystic Fibrosis.
5. Mental retardation and emotional disturbances.
6. Orthopaedic disabilities.

The blind, deaf, emotionally disturbed, or retarded child requires highly specialized assistance and guidance, and a patience and understanding flavoured with an almost religious fervour, and this is provided in varying degrees of adequacy in this province through facilities set up with these children in mind. (See footnote #1) As was stated earlier, the field of rehabilitation for children generally embraces youngsters with physical or orthopaedic handicaps, and further discussion will be centred on such as these.

Of the variety of orthopaedic problems, it has been found that they can usually be narrowed down to two fundamental disabilities which result in handicapping conditions, viz. limitation or absence of movement at the joints, and muscle dysfunction. Another classification of orthopaedic problems embraces the various conditions handled by a child rehabilitation centre, and of these, some 80% and more fall into the neuro-muscular category.

CLASSIFICATION OF ORTHOPAEDIC CONDITIONS
(from Rusk)

(a) NEUROMUSCULAR	(i) Cerebral Palsy
	(ii) Poliomyelitis
	(iii) Spina bifida
	(iv) Spinal cord lesions
	(v) Amyotonia congenita
(b) MUSCULAR	(i) Muscular dystrophy
(c) BONES & JOINTS	(i) Arthritis
	(ii) Congenital anomalies
	(iii) Osteogenesis imperfecta
	(iv) Club foot.
(d) AMPUTATIONS	(i) Upper limb
	(ii) Lower limb

Objectives

If the main objectives are to be met in a plan of child habilitation, then the resources of the team of workers must be aimed at the disability and the remaining abilities. For example, a child disabled to the degree of paraplegia may be that way because of cerebral palsy, spina bifida, spinal cord injury, tumor, or poliomyelitis. It is the paraplegic disability upon which rehabilitation is focused, with the ultimate objective of habilitating this youngster to the extent that he is able to enter into his world of school, family, and community. To a certain degree, the diagnosis may be of importance in guiding the management of the therapy.

What then are the basic objectives in a programme of rehabilitation designed for the handicapped child? The ability to communicate with others through adequate speech stands out as a first objective. Second, the maximum use of the hands is of as much significance to the disabled as it is to the normal child, if not more so. Third, ambulation, whether dependent upon brace, crutch, wheelchair, or cane is an important objective to the therapist and child alike. And fourth, the proper handling of self-care activities must be mastered so that the child can acquire a greater degree of independence. Finally, the summation of all these aforementioned aims, and in many instances the most difficult or impossible to achieve, is to have the appearance of being normal, regardless of the handicap.

A programme must then be formulated which will fulfill the aims set forth in the light of the philosophy outlined earlier.

Facets of a Child Rehabilitation Programme

As has been stated several times previously, the total habilitation of the handicapped youngster depends on the integrated energies and skills of a *team,* working preferably under the guidance of a specialist in some aspect of the field of rehabilitation.

Ideally, the team should include:

The *Physiotherapist,* whose training enables her to apply a combination of physical agents (electricity, radiation, heat) and principles (exercise, massage) at the proper time, of the required amount, and for the most beneficial duration.

The *Occupational Therapist,* who suggests, demonstrates, and assists the child and his parents in suitable activities and occupations designed for remedial purposes, e.g. brushing of teeth, hair-combing, use of hands, etc.

The *Speech Therapist,* who guides the child-parent unit when speech difficulties are encountered or foreseen, by applying her skills to parent counselling, problems of phonation and articulation, and assessment of audition.

The *Psychologist,* whose part on the screening

team is to evaluate the patient's psychological status, abilities, aptitudes, and interests. His findings contribute to the disposition of the case, and often help to make a decision as to whether or not the patient can be expected to profit, now or later, by the treatment offered.

The *Educationalist* and *Vocational Guidance Expert* who, in close association with the psychologist, outlines programmes of study and training from which the child can best benefit, considering his limitations.

The *Medical and Surgical Consulting Staff* who apply their particular skills to the problems of importance in individual instances.

The *Psychiatrist,* whose job is two-fold. First, he can contribute from his own knowledge to increase the understanding of the workers in rehabilitation programmes so that they might better grasp the psychological dynamics of themselves and the handicapped persons. Second, he can be of direct help in the solution of the emotional problems that may arise in specific cases. This latter field may have a significant bearing on the success of the rehabilitation plans, for the emotional problems of any handicapped individual may be more important impediments to his progress than are the physical factors. This problem is often a major factor to be considered in rehabilitating the handicapped adult, but the congenitally handicapped child as well has a psychological problem, often of enormous proportions. This is caused not only by his physical limitations, but also by the strangeness and unreality of the world in which he lives. For example, there may be necessary distortion of his educational programme; he may have a grossly abnormal play-life during which his contemporaries are often conspicuous by their absence. The psychiatrist's task on the team, then, may be very significant and valuable.

The *social worker,* who works in close association with the psychiatrist and parents, helping the latter to understand and accept in a realistic light, the problems facing them and their child.

The *parents,* whose importance on the team is discussed below.

The requirements of an habilitation programme for crippled children, as outlined by the Ontario Crippled Children's Centre, includes a well-developed and realistic programme for the very young pre-school children. First in this scheme is a diagnostic service, set up in order to verify provisional diagnoses following medical referral to the Centre.

Second, the Parent Information programme provides opportunity for the mothers and fathers to discuss with individual team members the various problems which may arise in their particular case. The programme assists the parent to understand, accept, and adjust to his child's limitations.[10] Proper parent training as well as child training enables the parents to accept their role in the rehabilitation team, particularly in home training, where often the greatest gains can be made. The plan strives to promote a healthy attitude between the parent and child, and to abolish fear, hate, and guilt complexes which are often mediated by a lack of knowledge and understanding of their child's condition. A common attitude which must be overcome on the part of the parent of a handicapped child is that of overindulgence or overprotection. This strips the youngster of the ability and opportunity to do for himself, and thus deprives him of some of the real happiness of childhood.

The third important aspect of a programme of rehabilitation for the very young is that of attendance of the parents at specifically arranged meetings and discussion groups aimed at instruction in the various aspects of problems peculiar to the crippled child. Here they are helped to grasp their importance on the team. The physiotherapist can outline and demonstrate the child's home exercises for them, and explain their significance. The occupational therapist has an opportunity to demonstrate to the parents specific toys, utensils, and playthings which are designed to assist the child in getting better use of his hands and thus lead to varying degrees of self-reliance if not independence in some of his daily routine activities. Early feeding difficulties can often be overcome through the assistance of the speech therapists. All of this provides the parents of a child recognized as not normal with positive direction in their problem when they seek it early. If this is done, then the goal of the programme for the very young can be fulfilled, that is to restore the functions of muscles, ligaments etc. While they are still responsive and before fixed deformities develop. Through such accomplishments, to some small or greater degree, the young child is better prepared to tackle the educational and vocational problems which lie before him.

A sound educational programme is essential for the handicapped youngster able to cope with it physically and intellectually, for this might be the means of compensating for his physical deficit in adulthood. Some communities provide special fac-

ilities including transportation and separate schools for the more severely handicapped children, (Footnote #2) whereas those less severely disabled are encouraged to attend regular public school if possible. Wallace,[8] in her study of school services for physically handicapped children in some 106 cities having a population of 100,000 or more, (U. S.A.) found that all those who returned her questionaire (96) provided some school services for children with an orthopaedic, neuromuscular, or neurologic condition. These included special day schools, regular classes, home instruction, and special residential school facilities.

She also noted that it is becoming more accepted that some handicapped children benefit from school attendance during the pre-school period, and this study revealed that over 30% of the public school systems admitted physically handicapped children to school before the age of five years. A further significant feature of this survey showed that the great majority of these educational services had special criteria upon which placement was based, but most of these established their criteria without the aid of local or state health departments. Wallace's recommendations from this study include the suggestion that the criteria for placement of the handicapped child in his educational setting be established jointly by the departments of education and health, aided by a variety of experts from the clinical medical, and non-medical fields. This is most important to the child's progress if his total habilitation is to include his educational period, as it should.

Effective and adequate management of the preschool and school-age youngster enables him to advance to suitable vocational training according to his abilities.

The Future

Total rehabilitation of the handicapped child has passed through the *trial* and *acceptance* stages of its development, and its *use* today reflects its essentiality as a therapeutic "agent". What then does the future hold?

Most important is prevention, where possible, through medical research programmes delving into genetic studies and investigation of the causes of crippling conditions. This is still the master key which may unlock the future of some of the crippled children. Though much is being accomplished, much more remains to be done. The medical generation of tomorrow may be in the unique position of never having to diagnose one of the major crippling diseases of past decades — poliomyelitis — because of accomplishments of research workers in recent years. Intensive research alone may provide that magical *open-sesame* for the doors which guard the secrets of other devastating and disabling diseases such as muscular dystrophy.

Should the need arise, the years ahead might produce more institutions for the residential care of those who will require assistance for the rest of their life. (Footnote #3) For those who will be able to meet adequately all of the physical, emotional, and mental demands of daily living, expanded training grounds (Footnote #4) must be provided so that these people might obtain full, or part-time employment, and thus stabilize themselves socially and economically.

Conclusion

It is definitely known that rehabilitation programmes for the adult individual with a physical handicap reaps gain for both the patient and

PARKE-DAVIS MEDICAL WRITING PRIZE

The editorial staff of the University of Toronto Medical Journal takes pleasure in announcing a new prize for undergraduates, who contribute to this Journal. The conditions follow:

1. The prize shall consist of $300.00 and a plaque awarded annually in the month of April.
2. All undergraduates enrolled in the University of Toronto Faculty of Medicine shall be eligible for this prize with the exception of the Editor-in-Chief of the University of Toronto Medical Journal.
3. A committee of professors and teaching staff of the Faculty of Medicine shall make a yearly recommendation to the Parke-Davis Company, as to who the winner for that academic session shall be.
4. The prize shall be awarded to the student who, in the opinion of the selection committee, has contributed to the University of Toronto Medical Journal, the article that combines the best use of the English language with the best effort in preparation. Evidence of careful examination of the medical literature about the topic selected by the student shall be an important criterion. Reports of research conducted by the student himself will be acceptable and favourably considered.

society as a whole. With the handicapped child, one must consider as well the contributing factor of maturation which, in itself, may be partially responsible for overcoming some of the difficulties evident in early childhood.

Habilitation of the handicapped child is, in effect, habilitation of the wage-earner of tomorrow, and it brings to the parent and child alike, a richer, fuller life, providing in many cases, independence and self-sufficiency, and if not, then varying degrees of self-reliance. Because of this fact, rehabilitation of the disabled child by the team method is both realistic and rewarding.

In order to make it so, we must accept the reality of the situation and help the handicapped youngster and his parents to do likewise. Solution of his habilitation problems should be a matter of cold judgment that is as free as possible from emotional bias. We must not pretend to ignore the handicap, nor should we over-value it. We must not play ostrich, nor should we assume the false optimism of Pollyanna. The overall responsibility of the medical field is to provide realizable opportunity.[3] If this is done then the rehabilitation problems in children will be lessened proportionately.

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FOOTNOTES

For further information, the reader may wish to contact any of the following regarding extensive programmes of rehabilitation, education, and recreation for handicapped children.

(1) School for the Blind, Brantford, Ont.
School for the Deaf, Belleville, Ont.
Thistletown Hospital for the Emotionally Disturbed, Thistletown, Ont.
Ontario Association for Retarded Children, 77 York St., Toronto.
Ontario Crippled Children's Society, 350 Rumsey Road, Toronto 17.

(2) Sunny View School, 450 Blythwood Road, Toronto.

(3) Bloorview Hospital Home and School, 278 Bloor St. E., Toronto.

(4) Variety Village, 3701 Danforth Avenue, Toronto 13.

Announcement. From the Office of the Dean, February 9, 1962.

Dr. A. C. Ritchie has been appointed Professor and Head of the Department of Pathology, effective December 15th, 1961. He is also Head of the Pathological Services for the Toronto General Hospital.

Dr. Ritchie was born and educated in New Zealond, where he attended the University of Otago, obtaining the degree of M.B., Ch.B. from the University of New Zealand. He received his D.Phil. from the University of Oxford. He is certified as a Specialist in Pathology by the Royal College of Physicians and Surgeons of Canada, and is a Diplomate of the American Board of Pathology in Pathologic Anatomy.

During his stay in England Dr. Ritchie worked as a member of the British Empire Cancer Campaign Research Unit with Dr. I. Berenblum, and with Sir Howard Florey at Oxford on antibiotics. After brief periods in Chicago and Boston he came to McGill University in 1954, and was appointed Miranda Fraser Associate Professor of Comparative Pathology in 1958. He has contributed to numerous scientific and professional publications.

Rehabilitation

by J. L. Madigan 6T3 and T. D. Marshall 6T3

The common concept of rehabilitation is that associated with the use of artificial limbs, optimal restoration of weakened muscles and the training of patients in new job skills. This, however, is much too narrow a view. A more comprehensive definition for rehabilitation would be — "Full restoration of the patient to the highest state of function compatible with his physical, emotional and mental potentiality". From this it follows that all aspects of treatment which aid in attaining this goal are facets of rehabilitation.

In self-limiting illnesses and injuries such as minor cuts, abrasions, colds sprained ankles, full restoration is achieved spontaneously. In diseases of a more serious nature, as cholecystitis, acute bowel obstruction or diabetes mellitus, restoration to full function is achieved on behalf of the patient through the respective skills of the surgeon and the internist. The amputee undergoes rehabilitation, following surgery for the removal of a damaged limb, when the stump is properly prepared by the therapist in order that a prosthetist may fabricate and fit an artificial limb; where-upon the therapist resumes her treatment by teaching the patient how to use the prosthesis properly for walking, or holding, as the case may be.

In the case of a major persisting disability, interference with function may make it impossible for the victim to continue to live as he had before the injury with respect to job, social life or recreation. Indeed, it may even become impossible to live in the same community. It is evident, that in such a person, the measures necessary to restore the fullest degree of useful function will be more complex, depending upon the extent of disruption the injury has caused to the patient's life and the inherent qualities the patient brings to bear on his problems.

In the past, those suffering from crippling and /or disabling diseases were kept quietly in their homes, or taken care of by the meagre facilities provided in their communities; as a consequence of their condition many of the disabled died at an early age from complicating diseases. Today, a very great number of persons survive disease and disability which formerly was fatal or so vastly disabling as to preclude any hope of useful living ever being restored. Hence, physical restoration of the physically handicapped has become a pressing need in our society. Therefore, the members of the medical profession who have been concerned mainly with diagnosis and the application of specific therapy, must now turn their attention to the restorative aspects of treatment. It is not easy to assume new responsibilities and acquire new techniques when one is fully engaged in terms of time and energy with the conventional methods; nevertheless, the total care of such patients requires that the doctors of today assume this additional responsibility.

As is so often the case, when a great need arises, it is soon widely recognized. Provision is then made to meet the need. Hence, today there is commonly found in modern hospitals, Departments of Physical Medicine and Rehabilitation. Facilities of space, personnel, and equipment are becoming more and more available. With the proper application of the required services and utilization of equipment, the desired result, in a vast number of cases, is achieved with surprising ease.

Indeed, the need is so great that the Provincial and Federal Governments, due in part to the immense cost of providing the necessary facilities, and in part to the number of persons using them, have become especially interested. The Federal interest is mainly financial, in that the Dominion Government will share with any province fifty percent of the cost of the training, maintenance and placement of those handicapped persons who might benefit from such a programme and accept gainful employment. The Provinces are, of course, obliged by law to provide the facilities and treatment services and meet this obligation in varying degrees. In those departments where the physical modalities of heat, light, electricity, ultra sound, and hydrotherapy are available, and where there is adequate space for the application of the most important physical measure, exercise, persons who have suffered amputation, neuromuscular disorders, arthritis, fractures, strains, and sprains, may be benefitted and restored to useful living and a pain-free existence.

The medical knowledge and skill necessary to make use of these facilities is inherent in the train-

ing of every medical student and graduate physician, although it is not always recognized. The concepts are those of basic physiology, pathology and psychology. In fact, it is surprising that any practising doctor should feel that he cannot achieve competence in the field of restorative treatment. Perhaps the gap in knowledge reflects the lack of clinical experience available in many training hospitals, thus making it difficult for house physicians and surgeons to obtain firsthand experience. The length of training of a junior intern is, possibly of necessity too short to enable him to observe the full cycle of management of the more severe disabilities, such as rheumatoid arthritis, paraplegia, hemiplegia, and many other chronic disorders of the body and mind. However, this has not deterred doctors from treating tuberculosis, psoriasis, or even leprosy and, in the same way, it should not deter us from treating neuromuscular disorders which comprise a large part of the work in this field. Indeed, one has only to care for a few cases to learn the constants and variables of progress or regression. As in other branches of medicine, the value of various therapies is learned through clinical experience and only then does one acquire clinical judgment. Proficiency at evaluation is second only in importance to diagnosis and specific therapy. It is essential to be able to estimate the potential functional capaciy remaining in he disabled person. This involves an assessment of intellect, motivation, character, and determination as well as of the specific deficit.

The ready availability and use of other professional groups, as the nurse, speech pathologist and audiologist, teacher, psychologist, brace and limb maker, vocational counsellor, social worker, physical and occupational therapist, are indispensable in the treatment of many cases. However, although it should be remembered that they each possess professional skills which, by and large, are not possessed by the doctor, it is the doctor who must initiate treatment and direct each aspect of the programme with each subserver. The doctor alone determines when a patient is ready for exercise, or how much is required, when a patient should get out of bed following a stroke, or when he requires social planning, education, speech therapy, or job placement.

Rehabilitation is assured for the patient when the doctor assumes full responsibility for his care from the beginning to the end of his illness. This involves, as well as diagnosis and specific therapy, the direction of a programme for restoration of the patient as a functioning whole. This programme may be of a limited nature such as demonstrating the use of crutches while awaiting the return of strength to an injured limb or it may involve the launching of an educational regime of considerable length. Throughout, it should be remembered that delegation of details of treatment must stop short of delegation of responsibility. Throughout the programme, it should be remembered that the great role of the doctor is to properly indoctrinate the patient so that he might better accept his disability and contribute to the best of his ability to the success of the therapy.

Just where are these facilities available now, and why are they not available everywhere?

They are available in teaching and large metropolitan hospitals. They are also available wherever practicing doctors have demanded that they be provided by hospital administration. X-ray equipment and laboratory services have not always been available everywhere, but few hospitals are without these services now. When doctors refuse to use a hospital owing to lack of equipment and facilities, the required service soon appears. In this way, facilities for the restoration of the disabled — now lacking in well over half the active treatment hospitals in Canada might be established.

The value of rehabilitation services is apparent when one considers that the proper application of the concept leads to benefit for all, and to personal independence, mobility, and social economic independence for the vast majority of the disabled.

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The authors wish to thank Dr. A. T. Jousse of Lyndhurst Lodge Hospital, without whose ideas and suggestions this article would have been impossible.

Interesting Cases

Case No. 3

Mrs. A. B. This 40 year old mother of 2 children, who had been separated from her husband for 4 years, presented herself at the Toronto Western Hospital (T.W.H.) in June of 1946. Four months prior to this she had developed pain and swelling of her (R) great toe, followed, over a period of weeks, by pain and swelling of both knees which gradually extended to involve both elbows and shoulder joints and, by the time of admission, her wrists and hands were also severely involved in the process. Her health was such that she had been forced to give up her factory job. A diagnosis of rheumatoid arthritis was made at that time and she was kept in hospital for 6 months on a regimen of: bed rest, splints to the affected joints, heat, vitamins, a high calorie diet and physiotherapy. She showed steady improvement and was discharged with the disease process in a quiescent phase.

After her discharge from hospital, she obtained General Welfare Assistance and returned to live with her 11 year old daughter. Througout 1947 she continued to have discomfort, particularly in her hands and (R) knee. She was seen regularly in the Outpatient's Department and was maintained on salicylates (as required for pain) and a vitamin supplement. Her feet were found to be painful, with ankylosis and flat arches, so arrangements were made through the social service department of the hospital to have her fitted with special shoes.

In May of 1948 she was referred to the Department of Welfare to secure extra money with regard to an enriched diet and to her inability to work. Work was found for her which she was able to continue for 6 months, but was forced to stop due to pain. By the end of the year she was complaining of tiredness and weakness with dizziness at times. Her weight had dropped from its usual 103 lb. to 89 lb. She had so little money that if she were to spend enough on food, she could not heat her house and vice versa. Throughout 1949 her condition remained relatively unchanged. By November she still felt weak and was complaining of pain, especially in the (L) foot and (L) elbow. Arrangements were made for her to receive the Disabled Persons' Allowance.

In May of 1953 a careful clinical assessment was carried out at the T.W.H. At that time her rheumatoid arthritis was in a quiescent phase and the chief problem was that of mechanical destruction of the joints. She was given general supportive therapy which included:

1. rest periods at least twice a day
2. a high calorie diet with multivitamins and cold liver oil
3. heat and massage to the affected joints 4 to 6 times a day
4. splints for her hands when necessary
5. carefully graded "tension" exercises
6. salicylates as required for pain.

In June of 1954 the patient arrived in the Outpatient's Department in a wheelchair. She had been getting along well until March when she twisted her (R) foot on a piece of coal. She suffered pain and swelling of the (R) foot which extened from there to involve the (R) knee. Later the (L) knee also swelled and she had been confined to bed for 3 months. She had received treatment with tablets of cortisone (22 for $6.00) which gave temporary relief, but which she discontinued as she was unable to afford this luxury. On examination her condition was little changed except for gross wasting of muscles. It was recommended that she start "tension" exercises under the supervision of a visiting physiotherapist. She was to have supportive bandages (elastic in the daytime and flannel at night). Her condition did not improve and she was admitted to T.W.H. in July of 1954 where she was given general supportive care and started on phenylbutazone. She showed considerable improvement on this drug and was discharged in reasonably good health. Over the rest of that year and during 1955 the drug was discontinued several times, but had to be re-instituted each time due to recrudescence of symptoms. By the fall of 1955 she was in acute distress, despite the phenylbutazone. Consequently, it was discontinued and she was started on prednisone. As this was an expensive drug, extra money was solicited from the Municipal Department of Public Welfare. She showed marked improvement and remained well over the next year. In June of 1956 the drug was discontinued and, in spite of the return of her symptoms, it was felt that it was too dangerous to be re-instituted. She was maintained on APC's. However, by October the pain in the affected joints was very severe and she was also complaining

of pain in the (R) side of her neck. She was again started on prednisone and continued in reasonably good health until the spring of 1957 when she had an acute flare-up of the (L) knee. She was admitted to hospital for bed rest, heat and extension exercises and was somewhat improved on discharge.

In June of 1957 she was suffering from increasing pain in both knees. She had been taking her prednisone only sporadically at home. It was emphasized that she must take the drug regularly. It was recommended that she have bed care at home and that the Canadian Arthritis and Rheumatism Society (C.A.R.S.) visit her twice a week. By August of that year her arthritis was worse and more widespread and she was unable to eat or sleep. She was admitted to the T.W.H. where aralen (250 mg. a day) was added to the prednisone (10 mg. a day). She was much improved on discharge. However, she had been suffering from increasing shortness of breath on exertion over the previous months and her blood pressure by January of 1958 was 180/100. The prednisone dosage was decreased and her salt intake was restricted. By March of 1958 she was complaining of bilateral arm pain radiating from her neck. She had limited (R) and (L) lateral flexion and on (R) lateral rotation pain shot into the (R) arm. There was also (R) deltoid weakness. She was started on cervical traction. During 1958 she suffered from recurring bouts of pain in both knees. This was helped by frequent injections of hydrocortisone (50 mg.) into the affected joints, as required.

By November of 1958 her B.P. was 220/110. She was complaining of blurred vision, epigastric distress, RLQ pain and a general dizzy feeling in the head. This was felt to be a toxic effect due to the aralen. The drug was discontinued and her symptoms subsided over the next two weeks. However, the pain in her knees continued to increase in severity. She was taken off prednisone and started on dexamethasone (1.5 mg. daily). As her condition continued to deteriorate, the dose of the drug was increased to 2.25 mg. a day. At the end of December, 1958, her condition was generally improved, but her (L) ankle was sore beneath the malleoli. She was given wax baths to the (L) ankle, which helped it greatly. Over the next year the dosage of dexamethasone was varied and finally stabilized at 0.75 mg. a day.

In January of 1960 both knees were warm and painful, but with full range of movement. The C.A.R.S. was contacted. New splints and heat were applied. Over the next 4 months she was given repeated injections of hydrocortisone into both knee joints. In June of 1960 she again had increasing shortness of breath on exertion, light headedness and was seeing spots before her eyes. B.P. at this time was 210/110. The dexamethasone was cut by half and she was given hydrochlorothiazide. These symptoms improved, but her general condition continued to deteriorate. She was losing weight and was getting an increased amount of pain and stiffness, particularly in the knees, ankles, arms and neck. She was admitted to T.W.H. in January of 1961 and given a course of colloidal gold therapy, but this had to be discontinued after 2 weeks due to the development of a skin rash. As her neck pain continued undiminished, she was complaining of paresthesiae in her fingers and there was also weakness of the intrinsic muscles of her hands and of her shoulder girdles, x-rays were taken of the neck. These revealed a subluxation of the atlanto-axial joint. A fusion of the C1-C2 cervical vertebrae was carried out with bone chips and an interspinous wire. Within a month, the wire had broken (as was apparent radiologically) and she was again having neck pain, but with no associated symptoms or signs in her upper limbs. During her hospital stay she developed bowel obstruction and a vesicocolic fistula with pneumaturia. A large mass was palpable in the lower abdomen, which was felt to be neoplastic. Laparotomy was carried out in July which revealed a large pericolic abscess, and confirmed a diagnosis of diverticulitis of the colon, but showed no evidence of malignant disease. A proximal colostomy was performed. Following the operation she suffered a severe urinary tract infection and had an episode of bronchopneumonia. She was progressing well when she suddenly developed severe jaundice (homologous serum type from the transfusions given before her colostomy?) and went into hepatic coma. She was treated on a low protein diet and I. V. feedings on which she improved gradually and was discharged to the Hillcrest Convalescent Hospital on November the 6th., 1961, taking 5 mg. of prednisone a day. While at Hillcrest she underwent an active physical and occupational therapy programme, and was readmitted to the T.W.H. on the 22nd. of January, 1962 (the present admission) for closure of the colostomy. The abdominal mass was found to have regressed considerably and she was in good general health, with good appetite and about a 10 pound weight gain. Her colostomy was well controlled and, apart from slight pain in the

neck, her condition was good. As she was only taking 5 mg. of prednisone a day, this improvement must be largely accounted for by the clearing up of her diverticultis.

At the present time she has good posture and is able to walk with minimal discomfort (although there is marked limitation of movement of both ankle joints). There is slight ulnar deviation of the fingers of both hands, but she has good function and does knitting and sewing. Her mood is elevated and she views the world with a smile. While unable to take a full time job, this lady certainly will have no difficulty with self care and there is a good possibility that she may be able to take part time work. She serves as a good illustration of the team work which must of necessity go into the treatment of this disease. Following, is a list of agencies in Metropolitan Toronto which provide ancillary services for patients of this type.

Economic

1. General Welfare Assistance. This is provided by the Department of Public Welfare of Metropolitan Toronto. An indigent person with no income is eligible for an amount up to $55.00 a month.
2. Disabled Person's Allowance. $55.00 a month may be granted on the basis of a means test by the Province of Ontario to persons between the ages of 18 and 65 years of age with 10 years residence in Canada and who are both totally and permanently disabled.

   The Municipal Department of Public Welfare will provide supplementary payments up to $20.00 a month on the basis of need, especially in relation to the rent and medical expenses of the recipient.
   N.B. A person is not eligible for 1 and 2 at the same time.

Active Treatment, Job Training and Rehabilitation

1. The general hospitals of the city (general medical and physical medical care).
2. The Canadian Arthritis and Rheumatism Society (C.A.R.S.) provides physical and occupational therapy, a medical social service, vocational guidance and recreation.
3. Neighbourhood Workers' Association: operates Illahee Lodge near Cobourg, where arthritic patients may spend a summer holiday. In order to qualify, they must be able to look after most of their own personal needs.
4. Toronto Rehabilitation Centre: arranges rehabilitation on an outpatient basis or through a home service deparment. This organization will condition patients in the activities of daily living and give training in self help skills. Also, it will give retraining in household activities, as prevocational exploration and referral for special job placement.
5. The Rehabilitation Foundation for Poliomyelitics and the Orthopaedically Disabled (formerly the March of Dimes): provides physical and vocational rehabilitation as well as necessary appliances.

Short Term Convalescent Hospitals:

1. Hillcrest.
2. St. John's.
3. St. Bernard's.

Long Term Hospitals for the Chronically Ill:

1. Our Lady of Mercy Hospital.
2. Riverdale Hospital.
3. Queen Elizabeth Hospital.

Home Nursing Care:

The Victorian Order of Nurses.

The St. Elizabeth Order of Nurses.

Employment:

The C.A.R.S. works in close conjunction with the Special Placement Section of the National Employment Service.

Most of the above listed agencies charge according to the ability of the patient to pay.

The Social Planning Council of the Department of Health and Welfare for Metropolitan Toronto has its office at 160 Bay St. Here, information is compiled on all the ancillary services available for the treatment of chronic disabling disease. Twice yearly the department publishes a book listing all these agencies. It is: "The Directory of Health, Welfare and Recreation Services in Metropolitan Toronto". A new edition is due to come out in June of this year and I can recommend it as a most valuable addition to the office of any doctor who intends to practise within Metropolitan Toronto.

Summary

The case of a 55 year old woman who has suffered from rheumatoid arthritis for the past 16 years, outlining mode of treatment and taking special note of ancillary services, was presented.

Acknowledgement:

I wish to thank Dr. J. S. Crawford, M.D., F.R.C.P.(C) and Dr. R. E. Renaud, M.R.C.S., L.R.C.P. (Eng) of the Department of Physical Medicine at the Toronto Western Hospital for permission to present this case and for their criticism of this paper.

Special thanks are extended to Miss Mollie E. Christie, Executive Secretary of the Information Council of the Department of Public Welfare, for clarifying the ancillary services available.

D. W. Strangway 6T2

UPJOHN ABSTRACT: Subject: *Acute Rheumatic Fever. The Treatment of Acute Rheumatic Fever.* Dorfman, Albert; Gross, John I.; Lorincz, Andrew E. (LaRabida-U. of Chicago Inst., and Dept. of Pediat., U. of Chicago) Pediatrics 27:692-706 (May) 1961.

From the results of this controlled study, the authors recommend that acute rheumatic fever with carditis be treated with adrenocortical steroid, but that a salicylate be used in the absence of carditis. All patients with acute rheumatic fever should be given adequate antistreptococcal drugs and then maintained on prophylaxis. All patients in this study were kept at complete bed rest for 15 weeks.

A total of 150 patients with first attacks of acute rheumatic fever were admitted to the study; the interval from onset of the attack to initiation of therapy was no more than 18 days, and none had received hormones for more than 24 hours or high doses of salicylate for more than 7 days. By a sealed-envelope technique, they were divided into 4 therapeutic groups: group F treated with hydrocortisone, group A treated with aspirin, group F + A treated with hydrocortisone and aspirin, and group O given no specific drug therapy except for the antistreptococcal drugs. All patients were given 300,000 or 600,000 units of procaine penicillin G in aluminum monostearate every other day for 5 days, were subsequently given maintenance prophylaxis with sulfadiazine (oral doses of 0.5 Gm. twice daily), and received 2.4 or 3.6 Gm. daily of potassium chloride and a diet containing less than 2 Gm. of sodium chloride per day. Of the 150 patients admitted to the study, 131 were studied for 15 weeks (129 of them followed for 1 year). A satisfactory randomization of cases was apparently obtained. Although the observers were not told which patients were receiving hydrocortisone, its striking effects soon made it evident.

Some manifestations of acute rheumatic fever (particularly fever, polyarthritis, and increased conduction time) subsided promptly upon administration of hydrocortisone and/or aspirin; each agent was superior to no treatment, with hydrocortisone being somewhat more effective than aspirin. Sedimentation rate returned to normal more rapidly in the treatment groups than in group O; hydrocortisone produced a much more rapid response than aspirin. The relative infrequency of chorea, erythema marginatum, and rheumatic nodules prevented evaluation of the effect of therapy on these manifestations; group O seemed to do less well than the treated groups, however. The incidence of diastolic murmurs was low, and meaningful analysis was therefore possible for only apical systolic murmurs.

	F	A	F + A	O
murmur	72%	61%	66%	60%
Incidence of initial				
Incidence at 15 weeks	38%	50%	25%	46%
Incidence at 1 year	13%	35%	16%	41%

Of the 46 patients with no initial apical systolic murmurs, only 3 (2 from group A, 1 from group O) developed murmurs by the end of 15 weeks, and at the end of 1 year only 1 (from group A) exhibited a significant murmur.

Untoward effects were benign in all but 2 patients (both in the F + A group). One developed a duodenal ulcer, which perforated; the course was benign after surgical repair. The other developed a bleeding duodenal ulcer, which responded to medical treatment.

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Psychiatric Problems in the Aged Patient

by S. E. Atack 6T3

The concept of mental disease is one which has plagued humanity from earliest generations and has provoked the most fantastic explanations and hair-raising cures devised by mankind. Through the ages, attitudes have changed from the wonder of primitive man, the fear and revulsion of the middle ages, the abject pessimism of the past few decades to the increasing optimism of contemporary workers. This has come about by dint of hard labour on the part of scientists in every field of medicine. There has been a drawing together of the physical and psychical aspects of mental processes as it has been realized that these two are inseparable. The psychologist, social worker, physio and occupational therapist, the research workers and technicians, and the innumerable persons with whom the psychiatric patient comes in contact all have their individual value in his rehabilitation, and are part of the 'team'. New impetus has been given to the helping of previously abandoned patients and the view of mental illness is becoming a more optimistic one.

Witchcraft has been abandoned; the great halls of Bethlehem Hospital are quiet. But the wards of our psychiatric institutions are filled, and the awareness of mental illness has become intensified in the community with the great increase in popular literature dealing with the subject. Have you noticed how much more colorful that article in the Digest was compared with Chapter III of the text? There are undoubtedly many sick persons who have been thus encouraged to seek help with the increasing knowledge that help is there.

Help is there:-but our hospitals are full. Lack of beds, as in every other field of medicine, is a major handicap. With the higher patient-turnover rate, where does the problem lie? At first glance, two groups of patients presently occupy the majority of beds in our institutions: the chronically ill, and the aged.

The first group arrived before there was much else but supportive therapy for them. One has only to look at the order books from those years to realize the paucity of definitive treatment: Laxatives to combat the ravages of inactivity, and narcotics to calm the agitated, fill the pages. Compared with the wide variety of new agents now occupying these pages, this is a dismal sight. These people, then, are the heritage of mental hospitals.

The newly admitted aged patient comprises the other large group. Here, rehabilitation offers more hope of further productive life for the individual, and consequently fewer chronic beds occupied. It is this problem which will be dealt with below, in hope that a brief survey will be of use in deciding what action to take when confronted with the elderly patient suffering from mental illness.

Why is there an apparent increase in admissions of the 'senile' patient to mental hospitals? With better medical care, the life-span of the individual has been lengthened, leaving a higher proportion of elders in the community. Other reports indicate that the decline in the birth rate in the western world has created what might be considered a rather artificial statistical situation in which there are more old people per capita than formerly.

Social factors have had a greater influence in the etiology of mental disorders in this age group than in any other stratum of society. Family units rarely remain static as they did in past generations. Younger members are venturing into the world, leaving their elders to the mercy of old age and the government. The increasing absence of women from the home has made it 'inconvenient' and often impossible to continue to care for the incapacitated elderly relative. In ancient Greece, it was known that inactivity of the mind caused deterioration. Lower compulsory ages of retirement have ended useful lives long before their time. It has been noted that there is a lower incidence of senility in professional groups and among the self-employed. There is undoubtedly a factor of stronger mental constitution resisting advancing age, but these are the people who keep active until physical disability prohibits it, or retire when they feel the time has come to pursue other interests. Mental stagnation is not forced upon them.

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BUSCOPAN is highly effective in the treatment of gastric and duodenal ulcers, gastritis, cardiospasm, mucous colitis, spasm associated with various types of malignancy, and spastic constipation.[1-5] Functional biliary disorders associated with cholelithiasis, cholecystitis, cholangitis and pancreatitis also respond well to BUSCOPAN.[1-4] Moreover, this agent has proved useful in the management of smooth muscle spasm associated with disorders of the genitourinary tract,[3,6] including dysmenorrhea.[3,7,8]

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Classification of Psychiatric Disorders in the Aged

I. Normal Ageing

1. Neurosis
2. Affective Psychoses
3. Paraphrenia

B) Acute Confusional States

1. Exogenous — alcohol
   — bromides
   — digitalis
   — barbiturates
   — morphia

2. Endogenous — vascular
   — infectious
   — nutritional
   — metabolic

II. Pathological Ageing

a) Senile Dementia
b) Arteriosclerotic Psychosis
c) Presenile Dementias

Normal Ageing

Psychogenic Disorders

Neurosis. The incidence of neurosis falls sharply in the fifth decade (Shepherd & Gruenberg, 1957), but the assumption that a person neurotically inclined will have shown his true colours by this time has not been proved. It is probable that some hypochondriasis and paranoid reactions are neurotic in character. Anxiety reactions are common in old age.

Throughout life, conditions are changing from day to day, and the individual is able to accomodate to them easily. With normal ageing, adaptability becomes more limited, and neurotic defences are more likely to be called into play to counter this inability to handle new situations. The premorbid personality probably plays a large part in the need for this support. Statistics are lacking in this area.

Affective Psychoses. Depressive. This condition often follows a personal misfortune, but this cannot explain the extreme degree of reaction shown by the patient. Of one group of patients over sixty years of age (Roth, Kay 1956), 50% had experienced similar attacks before sixty years. The majority of these had attacks before forty years of age. Cerebrovascular disease developed to an equal degree in both groups. Both had high discharge and low mortality rates, those of late onset being more stable in remission.

Relatives of patients suffering from involutional melancholia after sixty years stand a 4.8% risk of 'endogenous psychosis' as compared with the 11.4% risk to relatives of early manic-depressive patients.

Because of the onset of symptoms closely associated with environmental upset or physical illness, it is thought by some writers that a good many late depressions are reactive.[1]

Symptoms

1) anxiety, restlessness, agitation
2) ideas of guilt
3) nihilistic delusions
4) decreasing efficiency
5) vasomotor disturbances
6) feeling of foreboding

Manic. The characteristics of mania with its onset in old age do not differ from those seen in younger patients. A greater social problem arises because of the amorous tendencies of the patient. In a younger age group these might be attributed to youthful exuberance and ignored, but in the elderly the same behaviour is not tolerated.

The symtomatology of cyclothymic and schizophrenic psychoses becomes more similar with age, so that differential diagnosis may be difficult. In the acute schizophrenic picture hallucinosis predominates over mania.

The ratio of primary development of cyclothymic disorders to schizophrenia in the 7th to 8th. decade is 3:1.[2]

Paraphrenia. It is interesting to note that this condition occurs more commonly in women and in particular, unmarried individuals. It is characterized by a predominantly paranoid overtone. Since many of these patients have visual or hearing defects, it is thought that the relative isolation which these cause may be a precipitating factor in the psychosis.

Differential diagnosis is difficult in these cases, and there is some doubt as to its validity as a separate clinical entity. One school feels that it probably includes a heterogeneous group of non-organic paranoid states only some of which are

schizophrenia. Normal senile mental changes may produce psychosis in a paranoid personality, or may provoke schizophrenia.

In a series of 264 patients, 41 had marked paranoid symptoms. Those due to coarse brain disease could be differentiated from functional organic states and classified into schizophrenias, paranoid depressions and psychogenic reactions. A small group showed organic paranoid states. Physical and mental degeneration gradually set in at an advanced age, and the final picture does not differ from schizophrenia of early onset.

Acute Confusional States

Toxic-infective delirium is commonly seen with cardiac failure, chronic and acute respiratory disease, dehydration, anaemias, malignancy, alcoholism, drug toxicity and nutritional deficiencies. Painless myocardial infarction, silent pneumonia, prostatic obstruction, and pulmonary tuberculosis are conditions which must be watched for carefully in the aged.

Symptoms

1) fluctuation in the level of awareness
2) positive answers to questions
3) misinterpretation of individuals and events
4) richness in thought content in comparison with the empty thinking of the dement
5) inconsistent orientation
6) rationalization of discrepancies of fluctuating thought content.

When the underlying cause is treated, the confusion usually subsides in about two weeks.

Pathological Ageing

Senile Dementia

This disease is commoner in females over seventy years of age. It has been differentiated from the familiar changes occurring during the normal process of ageing in that its rapid course and severe debilitation allow the prediction of death within a few years.

Linden's *Concept of Senile Regression* gives a clear picture of the disease as seen clinically.

Stages:

1) increase in reminiscence
2) onset of forgetfulness
3) beginning withdrawal from reality
4) withdrawal, apathy, confusion and beginning disorientation
5) disorientation; loss of bladder and bowel control
6) completely helpless; neonatal to foetal stage.

Pathogenesis of Senile Psychosis:

1. Biological Changes
   1) vascular lesions with or without thrombosis give rise to confusion and dementia
   2) general diseases, often undiagnosed with few symptoms
   3) biochemical changes, hereditary or acquired, causing endogenic psychoses
2. Physiological and Psychosocial Factors
   1) the premorbid personality
   2) former way of life
   3) psychological problems of old age
      i) realization of being old
      ii) economic circumstances, work, finances, housing etc.
      iii) human relations in the family and in general
      iv) sexual life
      v) metaphysical problems

Stresses resulting from uncertainty, boredom and loss of place due to these factors act on cortical connections causing secondary changes in the metabolism of serotonin, noradrenalin, etc., which gives the picture of organic lesions. There is limited opportunity to readapt these patients by a medical, psychological and social team.[4]

A series of 750 cases in two Swedish mental hospitals showed that environmental factors were important in the etiology of senile dementia although less than in the affective disorders. There was a significant hereditary factor. Among the siblings of the patients the morbidity risk up to eighty years of age was 10%, and among the parents 6%, as compared with 1.4% in the general population.[5] It is felt that the premorbid personality is responsible to a large degree for the ability of patients to adapt and compensate for organic cerebral deficits.[6]

Arteriosclerotic Psychosis

Cerebral arteriosclerosis progresses in an erratic

and unpredictable fashion in comparison with the progressive downhill course seen in senile psychosis.

An analogy has been drawn in comparing the process of memory with a recording tape. Throughout life the tape is produced, utilized and wound onto a holder. In senile psychosis, with its neuronal degeneration, the production of tape becomes upset after a time, so that the recent recording is faulty. The tape which was used and filed away, however, remains in better condition, so that past memory is intact.

In arteriosclerosis, even though there is a certain amount of general destruction, the holder with the old tape on it seems to be more seriously affected than the production of new tape. As a result, past memory becomes foggy, but recent memory is less troubled.

The first symptoms may be an acute delirious episode but close questioning generally reveals previous emotional lability, failing memory and restlessness.

General intellect becomes impaired. Concentration, new problems and finally habitual tasks become impossible. In senile psychosis, personality degeneration is seen early, but in arteriosclerotic psychosis there is a patchy destruction leaving the basis intact. Insight and judgment are preserved. Just as the emotions are labile, the course of the disease is labile. After each exacerbation there is usually some residual damage, but remissions may last for months.

Depression is commonly seen, but this is of a fleeting and shallow type, except in delirious episodes when suicidal tendencies are common. If the depression is deep and sustained a family history of affective disorder is common.

Elimination of 17-ketosteroids is low in degenerative dementias but is normal in dementia due to cerebral arteriosclerosis. Administration of ACTH intravenously shows a much greater increase in the corticoid and 17-ketosteroid level in the urine in arteriosclerotic dementia. This demonstrates degenerative lesions in the adrenal cortex with degenerative dementias which seem to be independant of the cerebral atrophy. No valid correlation has been established at the present time.[7]

Generalized symptoms of arteriosclerosis and cerebral anoxia become evident, and neurological signs may precede mental change by many years. The prognosis is little better than that for senile psychosis, death usually resulting from a cardiovascular accident, pneumonia, uraemia or heart failure.

Presenile Dementias

Alzheimer's Disease. Sögren's studies have shown a probable multifactorial inheritance of this disease. Its predominance in females has been explained by either reduced manifestation of the genes in males, or an inhibiting gene on the X chromosome which must be homozygous before it is effective in women. Cases of early onset often resemble toxic psychosis.

At postmortem an atrophied brain is found with wide sulci and enlarged ventricles. Argentophil plaques and neurofibrillary changes are seen. The thalamus, basal ganglia, cerebellum, cortex and sometimes mid-brain and substantia nigra are affected, (Lindgren 1952). Scholz considers this to be a form of amyloid degeneration.

Symptoms

1) impaired recent memory
2) failing efficiency in common tasks
3) loss of orientation for time and place
4) purposeless hyperactivity
5) unstable depression
6) fabrications and confabulations
7) increasing muscular rigidity
8) dysphasia with syllable repetition
9) final vegetative existence

Supportive therapy constitutes treatment.

Pick's Disease. This disease is characterized by cortical atrophy confined to the outer three cortical layers involving the frontal, temporal and, rarely, parietal lobes. Sjögren has demonstrated evidence for a dominant autosomal gene in its causation.

Symptoms

1) Insidious intellectual deficiency
2) Blunting of affect
3) Early moral and ethical degeneration
4) Amnesic or sensory aphasia
5) Apathy changing to euphoria
6) *Rare* disturbances of gait and muscle tone

Jakob-Creutzfeldt's Disease Cortico-striato-spinal Degeneration and Spastic Pseudosclerosis. Nutritional deficiency and genetic factors have been postulated as causes of this disease.

Symptoms

1) Apathy, memory loss, unpredictable behaviour

2) Muscular weakness, ataxia
3) Speech defect progressing to dysarthria
4) Loss of contact with environment with psychosis
5) Gross spasticity and paralysis

The disease is fatal in 6 months to 2 years.

Huntington's Chorea. A single autosomal dominant gene is responsible for the disease, and it rarely skips a generation. It is important, therefore, to identify it early in an attempt to limit progeny. The mean age of onset is 35-37 years, and it usually lasts for 10 to 15 years before death. It has been shown that rapid deterioration occurs in institutions and that patients who can be kept occupied in suitable jobs do much better until acute psychosis supervenes.

Symptoms

1) Abnormal premorbid personality
2) Tendency to suicide
3) Choreic movements of face, hands shoulders, with later disorganization of voluntary movements
4) Apathy and inertia with attacks of agitation
5) Late retention of memory
6) Euphoria or unstable depression

The other presenile dementias—Cerebellar Atrophy, Thalamic Degeneration, Kraepelin's Disease, Schilder's Disease, Marchiafava's Disease, are unusual.

Conclusion

Mental health in the aged is a complicated social problem, but with advancing accuracy of diagnosis and effectiveness of new therapy, many of these cases can be sorted out early and restored to function compatible with life outside the mental hospital, with the help of other agencies. This will alleviate a portion of the burden now borne by the institutions which are rapidly being converted to active treatment centres.

ACKNOWLEDGMENTS

The author would like to express appreciation for the constructive criticism and help given by Dr. Mary Jackson, Toronto Psychiatric Hospital, in the preparation of this article.

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CIBA PRESENTS

ON INSPECTION

J. BREBNER, 6T2

R. GILDER, B.A.

Figure 1. With what syndrome does this patient present?

Figure 2. Diagnosis?

Figure 3. What are your differential and specific diagnoses of this lump?

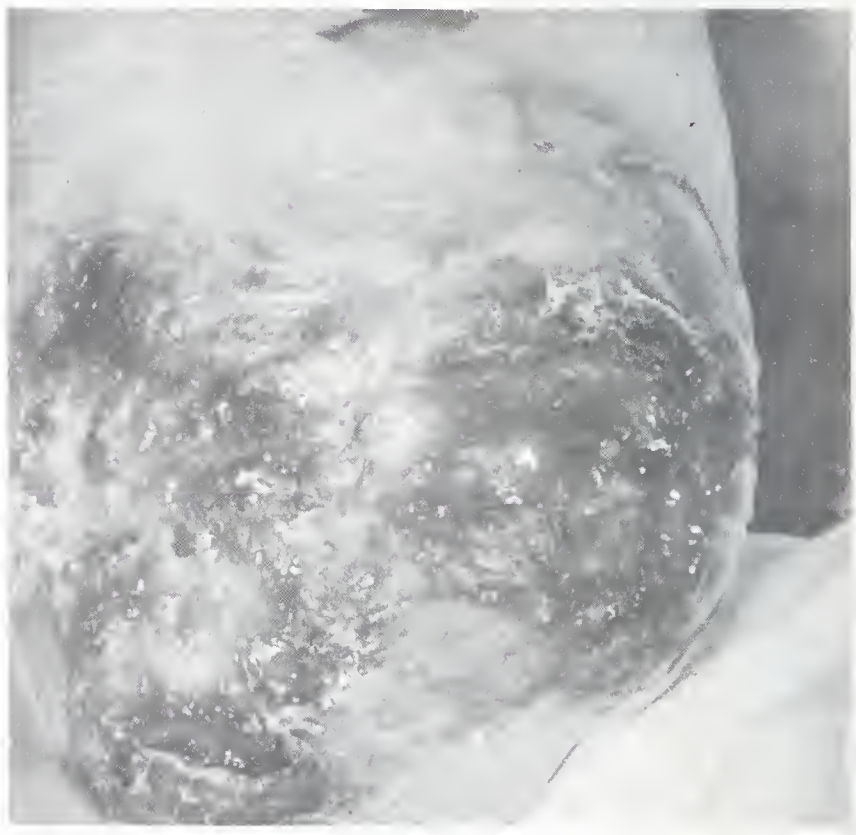

Figure 4. This is the heel of an elderly patient. What is the lesion?

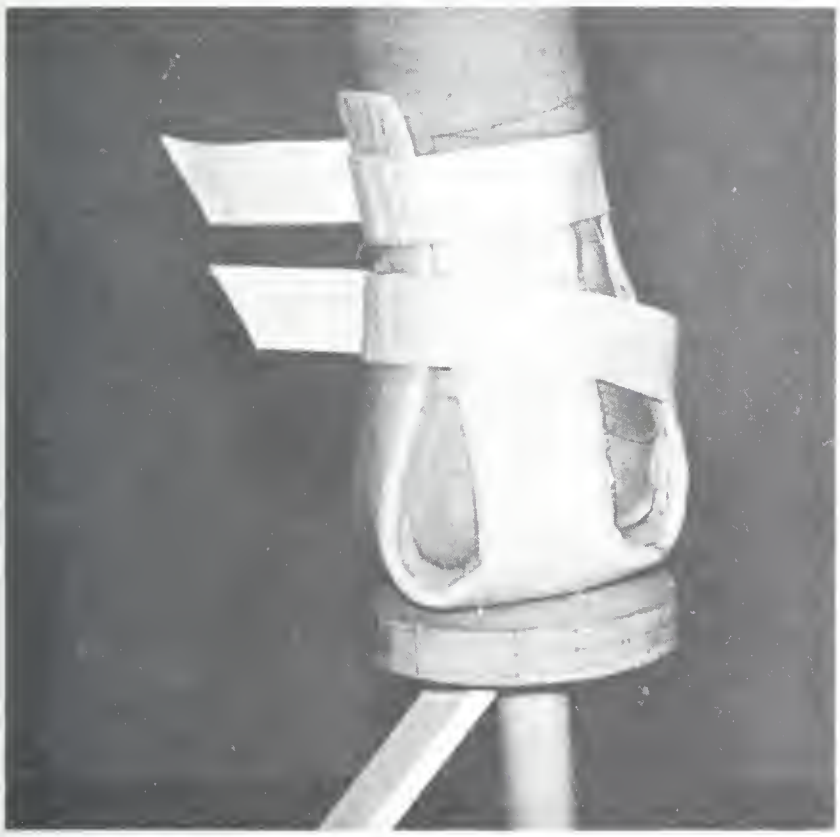

Figure 5. What is this weight-bearing amputation of the lower leg?

Figure 6. Of what disease process is this a classical picture?

Figure 7. What is your diagnosis of this woman's condition?

Figure 8. What lesion does this picture represent?

In Our Future Years

by Lavina Lickley B.A., 6T2

Why should we be interested in the social and economic aspects of old age? Nearly every publication concerning older people begins with a statistic-riddled chapter illustrating the startling changes in our population distribution over the past half-century. The number of older people has increased; the proportion of older people in our society has increased; the life expectancy of each individual has increased. An added factor is the industrialization and automation in our present-day society which has enlarged each individual's productivity, thus creating a labour force in excess of available jobs.

Ours is a culture which demands for each of its members that there be opportunity for a useful, creative and satisfying life. In fulfilling our obligation to supply this opportunity to our aging, we are not merely performing a service for the older people of today, but also providing a more rewarding old age for ourselves and for our children.

Above all this, the medical profession has a unique obligation in that it is largely responsible for creating the expanded life-span. One eighty year old lady summed this thought up by saying, "We old people have been given a present; it comes wrapped in a rather wrinkled cover. Quite a heavy package it is and not too easy to carry. The gift is a score more years than we are wont to expect."[4] We of the medical profession must make the "gift" worthwhile.

The shelves labelled paediatrics are filled with volumes, but literature concerning the opposite end of our life-span is comparatively sparse. However, a change in attitude is evolving, perhaps because of the threat that large numbers of older people will pose for our economy unless they are recognized as a source of economic potential. The last fifteen years have seen a surge of activity directed toward solving the problems of aging.

In 1951, the White House Conference on Aging[8 13 17] was held. In defining the principles involved in its "raison d'être",, the conference formulated a Senior Citizen's Charter.

Rights of Senior Citizens

Each of our senior citizens, regardless of race, colour or creed, is entitled to:

1) The right to be useful.
2) The right to obtain employment, based on merit.
3) The right to freedom from want in old age.
4) The right to a fair share of the community's recreational, educational and medical resources.
5) The right to obtain decent housing suited to the needs of later years.
6) The right to the moral and financial support of one's family, so far as is consistent with the best interests of the family.
8) The right to live and die with dignity.
9) The right of access to all knowledge available on how to improve the later years of life.

Obligations of the Aging

The aging, by availing themselves of educational opportunities should endeavour to assume the following obligations to the best of their ability.

1) The obligation of each citizen to prepare himself to become and resolve to remain, active, alert, capable, self-supporting and useful so long as health and circumstances permit and to plan for ultimate retirement.
2) The obligation to learn and apply sound principles of physical and mental health.
3) The obligation to seek and develop potential avenues of service in the years after retirement.
4) The obligation to make available the benefits of his experience and knowledge.
5) The obligation to endeavour to make himself adaptable to the changes added years will bring.
6) The obligation to attempt to maintain such relationships with family, neighbours and friends as will make him a respected and valued counsellor throughout his later years.

> *"For age is opportunity no less*
> *Than youth itself, though in another*
> *dress."*
>
> *Longfellow*

Who Are Our Old People?

It has become increasingly more popular to automatically consider as old, any person who has passed his sixty-fifth birthday.[18] Should not the label be applied instead, to those who have undergone obvious changes of senescence — physical,

mental or emotional? It is difficult to be objective in such considerations, but one of the most valuable services a researcher into the problems of aging could perform would be to set up objective criteria and establish norms of physical behaviour and mental and emotional status which will serve to indicate if a person in the older age group is in a state of health which is normal for his age.

What Is the Present Situation of Our Older People?

Present stereotypes of the aged are inaccurate. In a survey of older people U.S.A.[19], it was reported that the typical person over sixty-five reports his health as fair or good, his financial situation as satisfactory, his contact with children good, and claims to maintain vigorously his independence. This is not to imply that many older people do not experience problems, but to paint a generalized picture of failing health, dwindling income, poor surroundings, extreme loneliness or conversely, complete dependency, is also unrealistic.

What Are Their Needs?[1]

First of all, every individual has need of an economic status which will allow satisfaction of needs and a reasonable degree of independence. With respect to living accommodations, again, independence coupled with convenience is essential.

Old age brings with it, lessened vigour, attractiveness, mental efficiency, and satisfaction from pursuits. These losses demand countering with some ego-supporting relationships to ensure the psychological well-being of the older individual.

A person's social needs are varied. Each individual, regardless of age must function in many of the following roles: breadwinner, family man, club or church member, citizen, friend, user of leisure time and student.

Economic Problems

Sources of income available to older people are employment, accumulations such as cash, insurance and securities, benefit payments, assistance — either public or voluntary, and support given by relatives.

In spite of increasing use of pensions and private insurance plans and expanded government benefits, the bulk of older people's income is still from employment. Denied the opportunity to find profitable employment, such people's resources might be reduced to the point of privation. To what extent should our economy provide job opportunities for all those able to work and who wish to work? Older people are a source of economic potential in terms of actual numbers who are physically able to work and accumulation of experience. However, are there enough jobs in our present economic set-up to support all older people who might want employment without displacing or ruining the chances for advancement of younger people?[6]

Some reasons which have been advanced for not wishing to employ older people are: their inability to keep up today's high pressure pace; the need to give youth its chance; high cost of pension plans for older people; their inability to provide new ideas; the lack of profit in training older people whose future work-span would be short; the reluctance of younger people to have older ones working under them.

Studies have been carried out which indicate that though ability to carry out high-speed work and do heavy lifting may diminish with the years, yet, highly skilled jobs are often done better by the more experienced older person. "Whereas man hours per job may increase with age, craftsmanship is timeless." These studies also indicate that older people often perform better with respect to reliability, stability, attendance, patience, thoroughness, freedom from accident, attitude, conscientiousness and less need for supervision.[7 15 23]

Up till now it has been difficult to convince management and labour that hiring older people is of value, particularly when automation has lessened considerably the number of available jobs. Conversely, in times of economic boom, when as large a working force as possible is needed, employment of older people receives much favour even in the eyes of labour and management.

In the minds of the public are two conflicting and unrealistic "portraits of an old person facing retirement". At one extreme is a childish, incompetent, useless member of society, who must be fed and clothed; at the other extreme is a man — vigorous and healthy — carrying a wealth of accumulated knowledge, whose phychological make-up is being irreversibly traumatized by the shock of being "cut off in his prime". Awareness is growing (why education of the public is so important) that no one individual fits into either category. Agedness cannot be determined by years alone but must include consideration of capabilities.

Even the older person himself has different ideas concerning retirement. Many do not wish to face the prospect at all and thus arrive at retirement unprepared and unable to deal with the inevitable problems of readjustment. Others look forward to retirement as being the idyllic "golden age" — free from boring job and constant striving for impossible goals. To many it is the suddeness of the change which causes the problems. One day they are working, the next there is nothing to do. Pre-retirement programmes can do much to alieviate such problems.[25]

There are also many social implications regarding retirement such as the attitudes of a person's wife or friends, decreased contacts and loss of a routine for organizing daily life.

The trend seems to be toward employing a more flexible retirement policy. Admittedly it is difficult to find objective criteria for retirement and difficult for older people to accept that they should be retired while a contemporary is considered fit for employment. Also considered have been such alternatives as gradual retirement, optional retirement, part-time employment and job retraining.

In assuring a satisfactory financial status for our older population, thought must be given to the sources of income other than employment. Increasing use of insurance and pension plans should be encouraged and steps should be taken to assure that the latter will be controlled so that a pension cannot "fall through". Also, provision should be made for transferring of pension benefits so that such a plan cannot impede mobility of the labour force. Fear of losing pension benefits can freeze a man in a certain job regardless of how unsuitable it might be. Vesting of rights would increase security and allow mobility, but this would be exorbitantly expensive and the money better used for other benefits. Increased government aid is a necessary consideration.

Housing

I shall not discuss this in detail, but principles which should be considered are; providing for a type of living quarters which could be easy to care for, allowing the maximum degree of independence that the individual can handle, and providing accommodation that is as close to shopping centres and recreational facilities as possible.

Psychological Needs

Every individual needs some meaningful life role. The fall in status occasioned by not being employed is a serious blow, especially to the individual whose whole life has been outlined by the narrow horizons of occupation. "A mechanic is someone, but who is a retired mechanic?"[24] Lacking employment, each older person needs ego-support from other sources and something worthwhile to do. As one elderly gentleman remarked "Every retired individual needs something to do, but nothing that has to be done today."

The necessity for autonomy is present to some degree in everyone. However, there are people of every age, incapable of achieving complete autonomy, for whom a degree of paternalization will always be essential. Thus, it would be unrealistic to proclaim the necessity of allowing complete self-determination for all older people.

One more important consideration is that a normally healthy and stable older person may require help to meet the crises which are often attendant on old age — children leaving home, moving in with adult children, birth of grandchildren, retirement (especially if it is sudden), decreased income, passing away of friends or family, and illness.

Social Roles and Their Changing Face

Occupation and Retirement

An occupation must be of meaning to the individual and of use to society. It has been claimed that sudden retirement contributes largely to a rapid decline in health and early death, but such claims have been repudiated by certain fairly recent studies.[1 2]

As to loss of prestige, this may be real or imagined by the individual himself. In either case, the respect of family and community is a remarkable antidote and should be obtainable by greater public education.

Of necessity, a man is more likely to decline in later years. Nearly to the end, a woman carries on the same activities she always has, whereas a man finds a sudden change in the routine which he has followed for many decades.

What a woman may find hard to accept is having her husband at home for large periods of time, upsetting her routines and being a little less than enjoyable company because time hangs heavily for him. If the marriage has solid foundations, the couple will obtain much pleasure from the chance to be more together, but a border-line relationship may virtually crumble.

Perhaps counter to what one would expect, retirement seems to be more acceptable to the more intelligent or highly educated person. These people seem to have greater inner resources and capabilities of finding worthwhile activities.

Family Relationships

A survey done in England indicates that ninety-eight per cent of older people were not living in institutions but independently or with relations. Living with children can provide economic, and to some extent, emotional stability, but also is necessarily difficult, particularly if it is the older person who has moved into the home of the younger. It is difficult to relinquish the role of provider and accept that of dependent. In previous eras, the three-generation family was the common arrangement, but today, with smaller dwellings, the two-generation unit is the usual one. Also, ways of running a home and ideas on standards of behaviour have changed drastically and if an older person cannot accept these changes without criticism, friction will be inevitable. Above all, maintenance of privacy and property rights of everyone is important in allowing a tolerable home situation. Combining the old and the young in one family unit must be based on deep affection and a true desire on both parts to make the situation a happy one. The prime responsibility is on the aged.

Friends

If a family situation is missing, the older person must look to friends for a substitute relationship. Most frequently these are ones made in the earlier years.

Clubs, Associations, and Public Affairs

Clubs and associations can provide a great deal of pleasure for older people, but they tend to be given up through lack of money or energy. Men often enjoy clubs more than women, for the effect of retirement narrows their social contacts and a club may provide a suitable substitute.

Unless an individual was active in public affairs in earlier years, such a role will not likely play any greater part in his later years.

Religion

It is popularly believed that the older you grow, the more you turn to religion. However, studies do not substantiate this belief. Many do, though, receive spiritual support and social participation through their church affiliation.

Recreational Activities

Creative and recreational pursuits can do much to fill in the gap left by retirement. The danger to be avoided is providing recreation which is of too childish a nature. Some things which older people seem to enjoy are gardening, sports which are not too strenuous or difficult to learn, handicrafts, billiards and cards. Often older people are afraid to try something new because of the fear of not doing well, but if they can be shown that others like themselves have been successful in a similar venture, they often will try.

Passive pursuits such as watching sports, reading (many need to be taught the pleasure obtainable from this), radio and television are also enjoyed by older people.

Whatever the activity, the objective must seem worthwhile to the individual.

Education

This is important, not only for the older individual, but also for the community. People should learn about aging processes!

An educational programme designed to acquaint older people with the health aspects of advancing years is of inestimable benefit. Another valuable service is the teaching of new activities and interests, or if an occupation is a financial necessity to a certain person, job retraining should be given.

However, education for and about older people should be begun long before people reach that stage in life. People should be aware of the changes that are inevitable so that when they are faced with the problems arising from these changes they will be better equipped to deal with them. Also, education of the young concerning aging should do much to alter intolerant attitudes often evident toward the old.

The Role of the Doctor in Helping Older People

In addition to the obvious task of attending to the physical and mental welfare of older people, the doctor is in a position to be a leader regarding social acceptance of older people in the community. Also, a doctor can relieve anxiety in a patient — a common problem in old people — and this in turn helps create a better emotional status.[16]

In another area, the doctor should never forget to keep in mind possible rehabilitation, a feature often neglected in dealing with the ills of older people. Rehabilitation is best secured by making a reason for people to get well — interests, security, favourable family situation and feeling of usefulness.

At present there is too much tendency to put old people in mental hospitals because there is no place equipped to deal with their special illnesses. Instead, a community-complex for geriatric problems has been suggested.[18]

A patient would be cared for in a geriatric hospital during illness, and during convalescence attempts would be made to work out problems in family relationships and daily living. Also at this time, the patient's capabilities would be assessed to determine future re-establishment. When physical health returns he would be given economic and social assistance toward this re-establishment. Any individual may not progress beyond one of these stages, but hope is never removed for the patient knows he is being treated in a progressive plan.

Conclusion

Advances in gerontology are occurring. The popular appeal that other fields invite is not accorded to consideration of old folk. Ours is youth-directed society. However, indications are[22] that popular interest in the field of gerontology, as evidenced by coverage in the media of newspapers, radio and television is definitely increasing.

Our "sixty-five-plus folk" are not, by virtue of their years, a race apart. They need special programmes to serve their special needs, but the best possible integration of age, youth and those between is essential. There is a dignity imparted by not giving merely to satisfy material needs, but also helping older people to help themselves.

When it was first decided to include in this journal an article concerning the problems of older people, this quotation came immediately to the mind of one of the editors of the journal.

"Though much is taken, much abides; and though
We are not now that strength which in old days
Moved earth and heaven; that which we are, we are;—
One equal temper of heroic hearts,
Made weak by time and fate, but strong in will
To strive, to seek, to find, and not to yield."

Tennyson

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Announcement. From the Office of the Dean,

February 9, 1962.

The students will undoubtedly be interested to know that Miss M. L. Cassidy, who formerly performed the dual role of Secretary to the Dean and to the Faculty, now holds the appointment of Secretary of the Faculty of Medicine.

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UPJOHN ABSTRACT: Subject: *Neomycin in Deep Wounds. The Protection of Contaminated Deep Wounds Against Infection by Intraperitoneal Neomycin Solutions*: *Poth, Edgar* J.; Miller, T. E.; Dunlap, Wilma (Surgical Res. Lab., the U. of Texas, Medical Branch, Galveston, Texas) Amer. J. Surg. 101:766-768 (June) 1961.

Neomycin in ¼ and ½ per cent solutions can be employed safely to irrigate the contaminated and infected peritoneal cavity; numerous patients have been so treated by the authors and by others.

Experiments in guinea pigs are reported here in which it was possible to demonstrate that the intraperitoneal administration of neomycin acted to protect the animals against wound infection due to contamination in distant sites. It appears obvious that when neomycin is administered intraperitoneally in therapeutic doses systemic absorption occurs, and such treatment strongly affects distant potential infections of even serious proportions. It seems reasonable to conclude that when neomycin solutions are used to irrigate the peritoneal cavity and operative wounds, general systemic protection is conferred and contributes to the smooth afebrile convalescence experienced clinically after extensive, contaminating, intra-abdominal operations.

Communication Breakdowns

by James Graham 6T3

Why can't I talk right?
"It is by discourse that men associate"
Francis Bacon: Novum Organum

One of the wonders of the world is surely the way people communicate their thoughts and feelings to one another with the accuracy that they do. Efficient communication is so common-place that it is taken for granted by most people. The small girl asking her mother for a candy, the young man proposing marriage, the salesman delivering his quarterly report, the philosopher searching for an answer to his questions, the medical student confidently writing his final examinations, all need the faculty of language for effective communication.

Development of Speech

Language in the fullest sense of the word suggests any means of communication: verbal, graphic, gestural or tactile, as well as the mental processes involved in producing them. The development of the language process starts in early childhood, and depends on the ability, health and motivation of the individual, as well as favourable environmental influences. Most children are very strongly motivated to learn to talk in order to be accepted into an adult world.

The first cries, grunts and gurgles are a reaction of the infant to his environment. By eight months inflections develop in his vocal play, and by twelve months the child identifies and tries to imitate adults talking. His first true words are learned around this time, and may be reinforced by the parents, who can help him relate the vocal symbols to experience. Flexibility and encouragement at home help the child realize his full potential in language but too much pressure has a harmful effect. By eighteen months, he has a vocabulary of ten to twenty words, and by two years, he talks in short sentences. Language processes develop rapidly from this point, and the child's speech becomes more fluent as he is able to organize his thoughts better.

Disorders of Speech

Speech is a function of the body and may at times go wrong. It should be seen as a symptom, as a limp, ptosis, cyanosis or any other symptom, and defective speech should always be illuminated in the light of the patient as a whole. Van Riper defines speech as defective "when it deviates so far from the speech of other people that it calls attention to itself, interferes with communication or causes its possessor to be maladjusted". ((1) p. 19) Such conspicuous, unintellible or unpleasant speech must of course be related to the norms of a particular group or social environment.

Because speech is so important in personal interrelationships, the speech defective has a serious handicap, depending on the type and extent of his defect, the attitude towards the defect by himself and others, and personality assets which help compensate for the defect. The common reactions of most people towards a person with a speech defect are rejection, humour and pity, the last of which may be worst of all. The speech defective on the other hand, may react to these feelings of others by withdrawal, aggression or more rarely, understanding.

Classification

Speech defects may be roughly classified anatomically from hearing to speaking.

1.	Hearing problems	
	deafness	7
	hard of hearing	12
2.	Central nervous system	
	aphasia, agnosia, apraxia	½
	cerebral palsy	1
	delayed speech and mental retardation	3½
3.	Stuttering	9
4.	Disorders of voice (larynx and voice resonators)	
	injury, irritants, edema, neoplasm laryngectomy 'functional'	5
5.	Disorders of articulation (sound modifying structures)	
	cleft palate, cleft lip	1
	dental problems, malocclusion 'functional' (lalling, lisping)	39

The figures given at the right of these conditions give some idea of the relative frequency of

the main speech problems. They represent cases per thousand in a population of New England school children in a study done in 1951 by Pronovost. ((1) p. 34) More cases of aphasia, organic voice disorders and other acquired defects are found in an adult population, and adult aphonia is the most common speech disorder seen by speech pathologists. No similar study has been done in Canada, but the New England results are roughly representative of any given population.

Hearing Problems

Hearing problems affect communication in various ways. A child who is born deaf or hard of hearing in both ears has a serious handicap in that he cannot hear words to imitate them. Sixty per cent of deafness is congenital. A child who loses his faculty of hearing after he has learned to speak has fewer problems of communication, and these are only in the receptive field. Forty per cent of deafness is acquired, mostly by brain and ear infections, trauma, and otosclerosis.

Hearing may be tested with a watch ticking, tuning forks, or best of all, a pure tone audiometer. With the audiometer a graph may be constructed plotting intensity against frequency for each individual. The extent of his hearing loss will be evident, as well as the frequencies involved. A pattern should emerge showing a conductive or nerve deafness or a mixed type. Conductive deafness hearing losses are usually in the low frequencies or are uniform for all frequencies. These individuals may talk softly because they hear their own voices through bone conduction. Nerve deafness is characterized by high frequency hearing loss. These individuals often omit the high frequency sibilant sounds, and may speak loudly because bone conduction does not help them hear their own voices better.

Treatment of hearing disorders depends on the extent of the defect. Acoustic amplification by hearing aids is only of benefit in middle hearing losses, from thirty-five to seventy-five decibels of the voice frequency range in the better ear. Lip reading or Speech reading may be used to compensate for a slight hearing loss, between fifteen and thirty-five decibels. Hearing losses over seventy-five decibels are so serious that lip reading is the only method of 'hearing' normal speech.

Central Nervous System

There are many complex speech disorders associated with the central nervous system. Aphasia and mental retardation obviously originate there, but some disorders of articulation and voice should also be included. Stuttering could be considered to be a disease of the central nervous system, but it will be covered later under a separate heading.

Aphasia

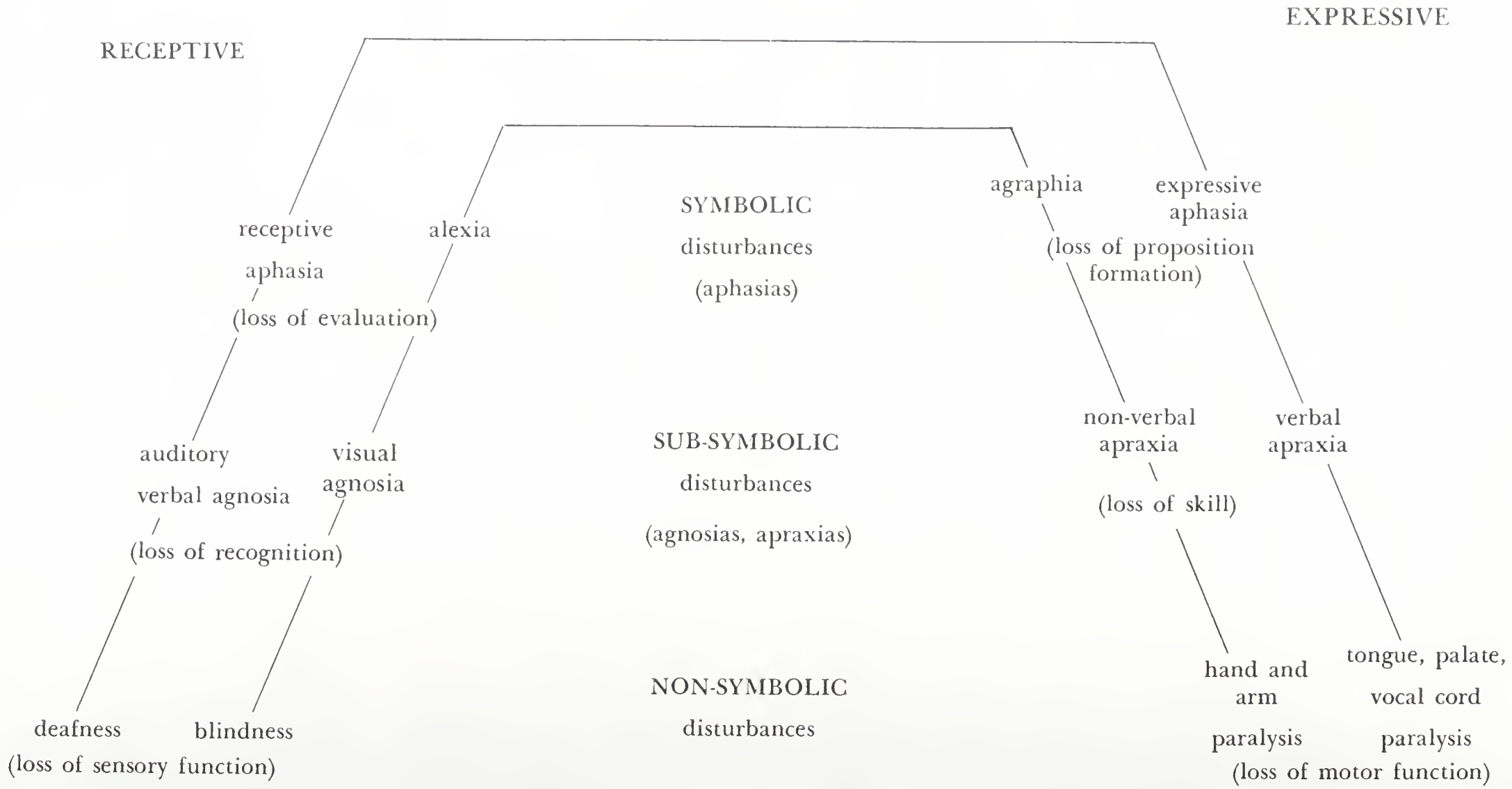
Aphasia is "that state in which one has difficulty in speech, comprehension of speech, naming,reading and writing associated with misuse and/or perseveration (persistent use) of words, but not due to disturbances in the mechanism of articulation or peripheral nerve involvement or generalized mental insufficiency". ((6) p. 92) In adults aphasia is caused mainly by trauma, space occupying lesion (neoplasm, abscess), or cerebrovascular accident. (Thrombosis and embolism have a much better prognosis than haemorrhage). In children, aphasia is usually caused by birth trauma, anoxia, kernicterus or meningitis. It is seen as part of the cerebral palsy picture (to be considered later) because the child has not yet acquired language.

The following chart will summarize the basic types of symbolic, sub-symbolic and non-symbolic central disturbances of language.

This chart is limited in that each disorder can have varying degrees of severity ie. all aphasics are not necessarily literally 'without speech', and that pure disorders are hardly ever found. In aphasia, one must distinguish mainly between predominantly receptive and predominantly expressive aphasia. Some useful screening tests are imitation, comprehension of speech and writing, naming and using objects, and stereognosis, but more detailed analyses are available. Expressive aphasics are more able to be helped by treatments because of their comprehension, but receptive aphasics tend to improve spontaneously to a greater degree.

Much controversy arises about the role of the dominant hemisphere, and the localizability of the lesion in aphasia. Although it is usually supposed that handedness is an index of cerebral dominance for activity (right handedness indicates a dominant left hemisphere), evidence is not clear for left-handed persons. Some think that the left cerebral hemisphere is usually dominant for speech regardless of handedness ((6) p. 102), and others think that handedness is a better index ((2) p. 462). The second area for discussion is the area of the dominant hemisphere that is affected in aphasia. There are localizationists and non-local-

CENTRAL NERVOUS SYSTEM DISTURBANCES OF LANGUAGE



izationists, but generally the nearer the lesion is to Broca's area (posterior part of the inferior frontal gyrus), the more the motor functions of speech are impaired; and the nearer to Wernicke's area (posterior part of the superior temporal gyrus and angular gyrus), the more speech comprehension is impaired. ((6) p. 72) These considerations are academic and have no bearing on therapy if all phases of language are exercised.

The treatment of aphasia is many fold. After a complete evaluation of a patient's linguistic situation, speech therapy should begin along with physical and occupational therapy as soon as the patient takes notice of his environment. The key to therapy is stimulation; auditory, visual and tactile, but the lines which therapy follows will depend on the patient's own ability. Either drills or a conversational method may be used, and frequently group therapy is beneficial.

Central Dysathrias and Cerebral Palsy

Motor speech disorders of the central nervous system besides aphasias can now be considered. These are analogous to the last two steps on the expressive side of the chart of central disturbances of language. These motor disturbances may be acute or chronic, static or progressive. They may be caused by encephalitis, cerebrovascular accident, trauma, abscess, neoplasm, neurosyphilis, multiple sclerosis, Parkinsonism or chorea.

A group of chronic static disorders seen in children is grouped under the name cerebral palsy. Childhood aphasics may also be included. These disorders begin with organic brain damage due to trauma, anoxia, kernicterus and meningitis. These have their origin prenatally, during birth or in the first year or two of life, and are characterized by a multitude of defects. Because the early occurance of cerebral palsy makes the child so afflicted very dependant, parental attitude is most frequently over-protective and thus the child's physical and mental potential, though already reduced, is not fully developed.

The speech of cerebral palsy is often delayed because of feeble mindedness or parental suffocation of motivation. Seventy per cent of cerebral palsy speech is defective. It is roughly classified by types: slow, clumsy spastic (cerebral lesion), slurred athetotic (basal ganglion lesion) and uncoordinated ataxic speech (cerebellar lesion) ((3)

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p. 118), although mixed types more usually occur.

Treatment of cerebral palsy conditions is two-fold, preventative and corrective. Preventative measures if started early can increase the child's motivation for action and communication. The simple acts of chewing and swallowing for example will prevent much of the disuse atrophy which hinders the speech of these children. This task of stimulating the children mentally as well as physically rests on the parents. Part of corrective speech therapy is sensory-motor stimulation by cold or massage, relaxation and exercises. This treatment is carried out in plain rooms where there are no distractions for limited attention spans. Another important part is attention to the child's emotional problems. Ontario now has eighteen centres for individuals with cerebral palsy, and results, in supposedly hopeless cases, justify treatment.

Whereas the cerebral palsies represent static disorders, multiple sclerosis is a good example of a progressive disorder. It is a demyelinating disease of the brain and cord mostly affecting people from twenty to forty. Patients are robbed of emotional and physical control of themselves. In the field of speech, their muscles of respiration, tongue, palate and larynx are sometimes uncontrolled, making their speech at times weak, slurred, nasal and of changeable pitch. Even though the disease is eventually terminal, the rate of its progression is so slow as to make it amenable to treatment. Speech therapy gives the patient exercise preventing disuse atrophy. Encouraging him to speak louder often helps his speech to become more intelligible. However, progress with patients with multiple sclerosis is usually a matter of degree, and complete correction is not possible.

Delayed Speech

Sometimes the onset of speech in children is delayed more than a reasonable length of time. This problem is difficult to classify because there are many varying causes. Two of the causes already discussed are hearing defects, and cerebral palsy (including childhood aphasia). Early childhood illnesses are sometimes a basic cause of delayed speech, because the vocal play of the infant, a necessary first step in the acquisition of language, is not developed. Mental deficiency is another very important organic consideration. Often the main symptom of lowered intelligence is delayed speech, although in some cases delayed speech is the cause of the apparent mental retardation.

Other causes of delayed speech are associated with home atmosphere and emotional reactions. Parents who anticipate their child's demands stifle motivation, and the child has no need of learning to talk. Many parents are poor educators, and pick wrong times or wrong stimuli to teach speech. Some are satisfied by verbal mediocrity, others are never satisfied. Emotional situations such as a severe shock or unhappiness at home may slow speech learning. Pressure on a child to learn a second language or to become right-handed may have an emotional effect which slows learning processes.

Delayed speech is treated in two ways: by eliminating the primary causes or minimizing their influence, and by speech training and language therapy. A consistent patient-extended programme of speech training is required to teach any child to talk, especially the one whose speech is delayed. Motivation is stimulated by showing him a need for verbal communication. Sounds and later combinations of sounds are built up into words, and gradually the vocabulary is extended. Communicative situations are set up in play to stimulate and improve speech and language.

Stuttering

Stuttering is the speech problem which is more of a mystery than any other. It is known by the repetitions, hesitations and prolongations in the speech of the individual, but its basic causes are shrouded in darkness. There are four times as many male stutterers than female. Symptomatic stuttering arises as a result of cerebral injury, and psychogenic stuttering arises as a result of emotional disturbances. By far the most common stuttering disorder is the gradually developing constitutional-developmental stutter. Typically, there is a family history of stuttering, and other disorders such as migraine, allergies, and epilepsy. The parents of the constitutional stutterer may be inflexible, demanding and anxious about their child's speech. They may hurry him, talk for him or penalize him for his non-fluency. The child may, in response, develop a lowered tolerance to speech frustration, which increases the non-fluency.

Developmental stuttering usually starts at age three to six as primary stuttering. This disorder is a greater than normal non-fluency characterized by slow, unhurried repetition or prolongation of sounds and syllables (rather than words and phrases of normal non-fluency without awareness), anxiety, struggle or avoidance. The treatment of primary stutterers is advice to parents and teachers

to maintain the child's lack of awareness. This is done by avoiding speech conflicts (eg. interruptions), and providing opportunities for speech with no pressure. Parents should not react emotionally to a child's 'block'. They should try to maintain his general health and increase his personality assets in other fields. At this stage stuttering is completely reversible.

Secondary stuttering is characterized by an awareness of the speech defect. Now aware, the stutterer becomes frustrated at his blocks and increases tension on his vocal apparatus, thus gradually changing the clonus of primary stuttering to tonus. At about age eight and often earlier he begins to anticipate the blocks he will have on certain sounds or words and in certain situations such as talking on the phone or to a group. Fear and anxiety are generated in these situations, and the stutterer is frustrated by the breakdown in communication. He reacts in several ways to try to hide his defect or glide over it. He may avoid speaking altogether where possible or substitute synonyms for the feared word. In this way his symptoms become internalized. He may postpone his embarrassment by pretending to think or licking his lips. Once he decides to speak, he may employ eye, head or body movements, or key phrases as 'starters'. These movements make up the non-vocalized symptoms of stuttering. He may also use devices to de-emphasize his stutter such as laughing, singing or softening everything he says. The stutterer's devices are retained because once the feared word is uttered anxiety is reduced, and he attributes magical significance to the particular device that helped him.

Treatment for secondary stutterers was formerly a matter of learning to avoid blocks. Exercises and distraction methods, such as the stutterer learns himself, were used to give the stutterer a temporary period of free speech. Usually, however, the formula became unconscious and old fears returned. A relatively new school of thought advocates controlled stuttering. The stutterer is urged to think of himself as a stutterer thereby reducing his fears about masking his disorder. He is taught to stutter consciously to eliminate his secondary symptoms and to cancel the feelings of relief which maintain these symptoms. Motivation for these goals is fostered by the speech therapist, who devises a series of sub-goals and assignments for the stutterer. Group, individual and self-therapy are used to advantage, and any concomitant problems in personal adjustment are worked through by the speech therapist or, if necessary, a psychiatrist. Using these methods, the stutter may be controlled in most situations, but usually he will never be a perfect speaker. Oddly enough, stuttering tends to die out after middle age.

Disorders of Voice

The normal voice has adequate loudness, clarity, appropriate pitch, a slight vibrato and changes in inflection which follow the meaning of what is being said. An abnormal voice may have changes in any of these aspects, and should be accurately analysed. A careful history will indicate vocal abuse, irritants and trauma which may have affacted the vocal cords, or emotional problems. Examination of the mouth, pharynx, and vocal cords (by visualization) is imperative for correct diagnosis.

Various defects in vocal cords may be visualized. Thickened edges, vocal nodules and contact ulcers are defects in the glottal edge resulting from vocal abuse in singers or people who use their voices a great deal. Other defects in the edge may be caused by tuberculosis, syphilis or neoplasms, and should be referred to a laryngologist. Failure of adduction of the vocal cords gives the voice a breathy quality. One cause is paralysis of the muscles of adduction, which may be central, peripheral or myopathic in origin. Trauma to the recurrent laryngeal nerves by aortic aneurism, goitre, neoplasms or surgery, causes most peripheral paralyses. Voice training over a long period of time is usually beneficial in these cases. Other causes of failure of adduction are aretynoid cartilage immobility and congenital underdevelopment of one of the bands. Laryngeal stenosis gives the voice a hoarse, tense quality. Oedema of the larynx from laryngitis or myxoedema may cause the stenosis. Laryngitis is treatable by rest, and myxedema by thyroid preparations. Tumours are the other major cause of stenosis, and must be removed surgically.

The laryngectomy patient has a special problem. When neoplastic growth necessitates removal of the vocal cords, a permanent tracheostomy is made, diverting air from the lungs, outside, away from the structures of sound modification. There are three accepted solutions to this communication problem. The most flexible and therefore most widely accepted method is that of esophageal speech. The principle involved is the vibration of the cricopharyngeus muscle by air injected into the oesophagus. In the past three years, the University of Toronto's speech clinic at the Princess Margaret Hospital Hostel has found this method

almost ninety per cent successful. In most cases, an intensive three week course gives the patient a basis on which to build by practising. In rare instances where structural defects preclude the learning of oesophageal speech, either a reed larynx attached to the tracheostomy or an electrolarynx pressed against the throat may be used to produce sound. These methods are unreliable and far less pleasing than oesophageal speech.

In patients where pathology of the cords is absent or secondary to vocal abuse, voice training is necessary. Restorative therapy for contact ulcers or vocal nodules may involve a period of silence, then quiet phonation with proper breath control and a resonant pitch. Old ways of talking must be discouraged, as vocal habits resist change. A positive attitude should be maintained in the search for an efficient voice. The same thought applies to other vocal abnormalities, such as the adult male falsetto voice. Emotional considerations are also important as in the case of hysterical aphonia. Progress is made when conscious and unconscious forces impose a great need for improvement. ((2) p. 857)

Disorders of Articulation

Disorders of articulation are substitutions, omissions, additions or distortions of normal speech sounds. They are noticed in childhood because the causal patterns are related mainly to congenital physical abnormalities and probably variations in the early speech learning environment. ((2) p. 759) If uncorrected, the defects due to congenital abnormality will be retained, but some of the developmental defects will be corrected with maturity.

Structures in the mouth and pharynx act as resonators and modifiers of the sound produced by the larynx. Physical abnormalities of palate, mandible, teeth, lips or tongue may be serious enough to interfere with proper articulation. The most serious of these is the cleft palate which is often associated with cleft lip. This defect should be repaired surgically within eighteen months, and orthodontic work should be started. Prostheses are sometimes used as mechanical aids to speech. A person with a cleft palate, even though it is repaired, may have hypernasality as well as articulating defects in his speech. Usually a long

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course of speech therapy is necessary to improve this traditionally therapy-resistant condition.

Other physical articulatory defects include dental problems. Recessive or protracted mandible or an open bite are examples of malocclusion that may precipitate articulatory defects. These may be treated by an orthodontist, but speech therapy is necessary as well because of secondary psychological factors. Lip and tongue abnormalities or paralyses also affect articulation. The problem of a repaired cleft lip is often lack of mobility, which may be corrected by exercises. In a unilateral Bell's palsy, practice in front of a mirror may partially correct the effect of the paralysed lips and cheek.

Most disorders of articulation have little or no structural basis. Some persons with articulatory defects have a general oral inaccuracy, while others misarticulate specific sounds such as 'l', 'r' (lallers) or 's' (lispers). The etiology is confusing, but it is probably mainly on developmental lines, and therefore related to delayed speech and stuttering in some ways. Physical, intellectual and emotional considerations are also involved. After an evaluation of the patient as well as his defect, some idea of the 'why' should be partially evident. Therapy planned for the child involves good motivation, ear training, and the application of the principles of cybernetics to the unlearning and learning of sounds. Co-operation with parents and teachers is necessary to see that the techniques learned in therapy periods are carried over into the patient's speaking life.

Conclusion

From the foregoing review, it may be seen that the field of speech pathology is exceedingly complex. More than that, relatively little is known about many of the conditions mentioned. Methods of treatment range from surgery to voice training, and prognoses vary considerably. In all cases, the situation of the individual is considered before the speech defect.

Many physicians are reluctant to do anything about speech conditions that are not correctible by surgery or drugs. Some of the patients with such defects should be referred at the discretion of the physician to a speech therapist. There are twenty-eight speech therapists in Ontario now, and a programme is in force to graduate more. The present speech therapy course was started when the Faculty of Medicine at the University of Toronto became aware of the necessity of including consideration of speech problems in the field of medical care. Speech therapists work on the prescription of the physician in this very specialized field. Only by careful work, and co-operation between doctor and patient, can the person with a speech defect enter with confidence the stream of normal communication.

Acknowledgment

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On Inspection

Answers to questions on page 164-5

Figure 1. Marfan Syndrome

Synonyms for this disease are: arachnodactyly, dolichosteromelia (long thin limbs), dystrophia mesodermalis congenita, typus Marfanis.

This disease is an heritable, generalized disorder of one element of connective tissue manifesting principally as disorders of the eye, skeletal and cardiovascular systems.

Clinically, the patient generally presents as a tall underweight person with extremities that are long and thin. The phalanges, metacarpals, and metatarsals are unusually long. Musculature is often flaccid, and loose-jointedness may be present because of redundant ligaments, tendons, and joint capsules. Generally, there is a sparsity of subcutaneous fat.

Ectopia lentis (subluxation of the lens) is the most specific component of the syndrome and may be combined with cataract, megalocornea, coleboma, and other defects of the eye.

The principal cardiovascular manifestation is a weakness of the aortic media. Thus that portion subject to the greatest haemodynamic stress of certain types — the ascending aorta — tends to undergo progressive dilatation or acute dissection. Dilatation may occur as early as the first, or as late as the fifth, decade and leads to left ventricular hypertrophy.

Other findings may be a long narrow skull, and deformed external ears. Mentality is normal in most cases.

Figure 2. Marfan Syndrome

This is another abnormality that may be found in the Marfan syndrome, a high, or "gothic-arched", palate.

Figure 3. Chronic bursitis of *Elbow*

In late cases of chronic bursitis, such as this one, the bursa may contain adhesions, villi, tags, and calcareous deposits with muscle atrophy conspicuous. In the differential diagnosis, gout (which especially affects the olecranon and prepatellar bursae), rheumatoid arthritis, syphilis, tuberculosis, and foci of infection should be considered. *Turn the picture sideways and observe the skin creases!* (The italics are the Editor-in-Chief's who was fooled also.)

Figure 4. Trophic Ulcer

This lesion, known also as decubitus, bedsore, or pressure sore, is caused by prolonged local pressure upon the tissues. This leads to partial or complete occlusion of blood supply to the part, and subsequently to necrosis and gangrene. This lesion is on the heel of an elderly patient with arteriosclerosis and diabetes, conditions which further predispose to trophic ulcers. It is seen most frequently in patients who have been long bedridden or have been wearing a cast which was too tight in one or more spots.

Figure 5. Syme's Amputation

The tibia and fibula are divided just above the ankle joint perpendicular to the long axis of the lower leg, through a transverse incision passing from mid-ankle anteriorly, and a long plantar flap, preserving all the soft tissues of the heel, is formed by an incision perpendicular to and continuous with the previous one and by removal of the bones of the heel. The plantar flap is then swung forward to form an end-bearing pad.

This amputation is absolutely contraindicated in occlusive arterial disease because of the poor blood supply to the plantar flap.

Figure 6. Cushing's Syndrome

As originally described, this syndrome consists of: peculiarly disposed adiposity, hypertension, fatiguability and weakness, amenorrhoea or impotence, hirsutism, "purplish lineae atrophicae", purpura-like ecchymoses, oedema, glycosuria, osteoporosis, and increased susceptibility to infection. Its incidence varies from three to one to five to one in females over males, and its onset is usually in the third or fourth decade.

The condition is due to adrenal cortical hypersecretion. In adults 60% of the patients have bilateral adrenal cortical hyperplasia, 30% have an adrenal tumour, and 10% show no abnormality of their adrenals.

Clinically, the earliest signs are weight gain, hirsutism, and amenorrhoea. Redistribution of fat gives the characteristic "moon facies", "buffalo hump", and obesity of the trunk with thin ex-

tremities. Plethora, hypertension, dependent oedema, muscular weakness, backache, and severe recurrent headache may be present. The skin is thin and friable, bruising easily. Red and purplish striae are often present on abdomen, flanks, breasts, and proximal extremities. Mental disturbances develop in many patients, varying from irritability to severe depression, confusion, or paranoia.

Plasma and urinary 17-hydroxycorticosteroid levels are increased generally.

Figure 7. Myxoedema

Hypothyroidism in adults occurs in about the ratio of 5:1 in females, occuring most frequently between the ages of thirty and sixty. It may be due to primary thyroid gland failure or secondary to anterior pituitary failure.

Clinically, the adult patient may have the typical facies consisting of a dull, uninterested expression, and puffy eyelids. Alopecia of the outer third of the eyebrows may be present, as in this lady. While the skin of the face may take on a creamy pallor, the skin elsewhere is usually dry and rough. Subcutaneous tissue is indurated and doughy, and hair is coarse, brittle, dry, and frequently graying prematurely. Often there is swelling of tongue and larynx, halting, slow, slurred speech, and a slowing of mental and physical activity. Reflex time is slow, constipation and anaemia present. There is generally an increased sensitivity to cold.

Laboratory findings consist of a low BMR, an increase of serum cholesterol (300-700), a low PBI (under 2 micrograms), and little, if any, radioactive iodine uptake. A false increase of the PBI may be found three months to a year following the use of Diodrast or Lipiodol.

Figure 8. Bell's Palsy

This patient presents with the signs of a facial nerve palsy viz., a complete paralysis of the muscles of expression on one side of the face (her right).

Bell's palsy is the commonest cause of facial paralysis and is presumed to be due to an inflammatory reaction in or around the facial nerve, near the styloid foramen. Its onset is acute and paralysis may be complete within a few hours. Eighty per cent recover within a few weeks.

Treatment consists of protection of the eye during sleep, massage of the weakened muscles, a splint to prevent drooping of the lower face, and administration of cortisone per os, 50 mg. twice a day, or meticorten *per os* 10 mg. twice a day, either therapy to be continued for ten days.

J. Brebner, 6T2

UPJOHN ABSTRACT: Subject: *Reducing Diets. Reducing Diets; Weight Loss of Obese Patients on Diets of Different Composition.* Fletcher, R. F.; McCririck, Marjorie Y.; Crooke, A. C. (Metabolic Res. Unit, Little Bromwich General Hosp., Birmingham 9) Brit. J. Nutr. 15:53-58 (No. 1) 1961.

Regardless of whether the greater part of the calories was from carbohydrate, protein, or fat, good loss of weight occurred in obese women on daily diets providing 800 calories. It therefore seems that, once the calorie intake has been decided and minimal nutritional requirements met, the composition of a reducing diet can be determined primarily by palatability and individual choice.

The 6 women who completed this cross-over study had moderate or severe simple obesity without evidence of endocrine or intracranial disease. Hospitalization seemed justified because of the degree of obesity in 5 patients (78 to 144% above expected weight) and because of the earnest desire of 1 patient to lose weight (38% above expected weight). During the entire study, these patients received vitamin supplements and an appetite-suppressant. For a preliminary period of 8 to 30 days, they received only the basic diet; they lost weight rapidly during this time, a total of 3.9 to 11.6 kg. The basic diet was made up of methylcellulose biscuits, "diabetic" fruit squash, lean beef or mutton, cheese or egg, cabbage, tomato, apple, and orange. It provided 507 calories per day from 29.9 Gm. protein, 25.6 Gm. fat, and 36.5 Gm. carbohydrate.

After the initial period described above, they were given the basic diet plus a supplement yielding about 300 calories a day — either protein, fat (butter), or carbohydrate (sugar). Each supplement was tested for 13 days by each patient, with the sequence being different for each patient and each test period being started with a day of near starvation.

The total weight lost during the 6 weeks was significantly related to the weight at its beginning. Neither the composition of the diet nor the order of the test periods significantly affected weight loss.

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